Chapter 1 Managerial Accounting and the Business Environment

True/False Questions

1. Although financial and managerial accounting differ in many ways, they are similar in that both rely on the same underlying financial data.

   Answer: True Level: Medium LO: 1

2. Managerial accounting is a branch of financial accounting and serves essentially the same purposes as financial accounting.

   Answer: False Level: Medium LO: 1

3. Managerial accounting places greater emphasis on the future than financial accounting, which is primarily concerned with the past.

   Answer: True Level: Easy LO: 1

4. Managerial accounting is not needed in a non-profit or governmental organization.

   Answer: False Level: Easy LO: 1

5. When carrying out their planning activities, managers select a course of action and specify how the action will be implemented.

   Answer: True Level: Easy LO: 2

6. When carrying out their planning activities, managers obtain feedback to ensure that the plan is actually carried out and is appropriately modified as circumstances change.

   Answer: False Level: Medium LO: 2

7. The controller occupies a line position in an organization.

   Answer: False Level: Easy LO: 2

8. Decentralization means the delegation of decision-making authority throughout an organization by allowing managers at various operating levels to make key decisions relating to their own area of responsibility.

   Answer: True Level: Easy LO: 2

9. A firm's organization chart will normally show both the formal and informal lines of reporting and communication.

   Answer: False Level: Easy LO: 2

10. The Chief Financial Officer of an organization is responsible for ensuring that line operations run smoothly.

    Answer: False Level: Medium LO: 2

11. Traditionally, companies have maintained large amounts of raw materials, work in process, and finished goods inventories to act as buffers so that operations can proceed smoothly even if there are unanticipated disruptions.

    Answer: True Level: Medium LO: 3

12. Process Reengineering is generally considered to be a more radical approach to improvement than Total Quality Management.

    Answer: True Level: Easy LO: 3

13. Process Reengineering emphasizes a team approach involving front-line workers, whereas Total Quality Management is usually implemented using outside specialists and is imposed from above.

    Answer: False Level: Medium LO: 3

14. If ethical standards were not generally followed, one of the results would probably be fewer goods and services available in the marketplace.

    Answer: True Level: Medium LO: 4

15. The Standards of Ethical Conduct for Management Accountants promulgated by the Institute of Management Accountants specifically state that management accountants' sole ethical responsibility is to not break any laws.

    Answer: False Level: Easy LO: 4

Multiple Choice Questions

16. Management accounting focuses primarily on providing data for:
    A) internal uses by managers.
    B) external uses by stockholders and creditors.
    C) external uses by the Internal Revenue Service.
    D) external uses by the Securities and Exchange Commission.

    Answer: A Level: Easy LO: 1

17. Managerial accounting:
    A) is more future oriented than financial accounting.
    B) tends to summarize information more than financial accounting
    C) is primarily concerned with providing information to external users.
    D) is more concerned with precision than timeliness.

    Answer: A Level: Easy LO: 1

18. Compared to financial accounting, managerial accounting places more emphasis on:
    A) the flexibility of information.
    B) the precision of information.
    C) the timeliness of information.
    D) both A and C above.

    Answer: D Level: Easy LO: 1

19. The function of management that compares planned results to actual results is known as:
    A) planning.
    B) directing and motivating.
    C) controlling.
    D) decision making.

    Answer: C Level: Easy LO: 2

20. Which of the functions of management involves overseeing day-to-day activities?
    A) Planning
    B) Directing and motivating
    C) Controlling
    D) Decision making

    Answer: B Level: Easy LO: 2

21. Which of the following is not one of the three basic activities of a manager?
    A) Planning
    B) Controlling
    C) Directing and motivating
    D) Compiling management accounting reports

    Answer: D Level: Easy LO: 2

22. The delegation of decision making to lower levels in an organization is known as:
    A) the planning and control cycle.
    B) controlling.
    C) decentralization.
    D) none of these.

    Answer: C Level: Easy LO: 2

23. Which of the following statements are false concerning line and staff functions?

    I. Persons occupying staff functions have authority over persons occupying line functions.
    II. Both line and staff functions are depicted on the organization chart.
    III. Line functions are directly related to the basic objectives of an organization.

    A) Only I
    B) Only II
    C) Only I and II
    D) I, II, and III

    Answer: A Level: Medium LO: 2

24. Which of following would normally be found on a manufacturing company's organization chart?
    A) the layout of the factory assembly lines
    B) a list of the materials needed to produce each of the company's products
    C) the informal lines of reporting and communication
    D) none of the above

    Answer: D Level: Easy LO: 2

25. For a hospital, what type of position (line or staff) is each of the following?

	Emergency Room Manager	*Human Resources (Personnel) Manager*
A)	Staff	Staff
B)	Staff	Line
C)	Line	Staff
D)	Line	Line

Answer: C Level: Easy LO: 2

26. A detailed financial plan for the future is known as a:
A) budget.
B) performance report.
C) organization chart.
D) segment.

Answer: A Level: Easy LO: 2

27. A performance report is:
A) a detailed report comparing budgeted data to actual data for a specific time period.
B) a formal statement of plans for the upcoming period.
C) required to be filed monthly by the Securities and Exchange Commission.
D) not used in decentralized organizations.

Answer: A Level: Easy LO: 2

28. A clustering of two or more machines at a single workstation is referred to as:
A) a manufacturing cell.
B) an activity center.
C) a functional layout.
D) a setup.

Answer: A Level: Medium LO: 3

29. A focused factory is:
A) a factory that makes only a single product.
B) a factory that performs a single step in the production process and subcontracts the other steps.
C) a plant layout in which all machines needed to make a particular product are brought together in one location.
D) required to bid for defense contracts.

Answer: C Level: Easy LO: 3

30. Large work in process inventories:
    A) are essential for efficient operations.
    B) reduce defect rates.
    C) increase throughput time.
    D) are a key part of Just-In-Time systems.

    Answer: C Level: Medium LO: 3

31. Ideally, how many units should be produced in a just-in-time manufacturing system?
    A) budgeted customer demand for the current week.
    B) budgeted customer demand for the following week.
    C) actual customer demand for the current week.
    D) maximum production capacity for the current week.

    Answer: C Level: Medium LO: 3

32. After careful planning, Jammu Manufacturing Corporation has decided to switch to a just-in-time inventory system. At the beginning of this switch, Jammu has 30 units of product in inventory. Jammu has 2,000 labor hours available in the first month of this switch. These hours could produce 500 units of product. Customer demand for this first month is 400 units. If just-in-time principles are correctly followed, how many units should Jammu plan to produce in the first month of the switch?
    A) 370
    B) 400
    C) 430
    D) 470

    Answer: A Level: Medium LO: 3

33. Process Reengineering includes all of the following steps except:
    A) constructing a diagram flowcharting the current process.
    B) redesigning the process.
    C) elimination of non-value-added activities.
    D) elimination of all constraints.

    Answer: D Level: Hard LO: 3

34. According to the Theory of Constraints, improvement efforts should usually be focused on:
    A) work centers that are not constraints.
    B) the work center that is the constraint.
    C) the work center with the highest total cost.
    D) the work center with the most obsolete equipment.

    Answer: B Level: Medium LO: 3

35. Which of the following is true regarding the theory of constraints?
    A) The theory of constraints does not apply to companies with multiple products because of capacity measurement difficulties.
    B) In any profit-seeking company, there must be at least one constraint.
    C) Constraints or bottlenecks stop organizations from selling an infinite number of units or services.
    D) both B and C above.

    Answer: D Level: Medium LO: 3

36. Pizza World makes forty-three kinds of pizza for takeout and delivery. Which of the following could be the constraint at Pizza World?
    A) the person who makes the pizza crust.
    B) the person who puts toppings on the pizzas.
    C) the pizza oven.
    D) any of the above could be the constraint.

    Answer: D Level: Medium LO: 3

37. The Standards of Ethical Conduct for Management Accountants developed by the Institute of Management Accountants contain a policy regarding confidentiality that requires management accountants to refrain from disclosing confidential information acquired in the course of their work:
    A) except when authorized by management.
    B) in all situations.
    C) except when authorized by management, unless legally obligated to do so.
    D) in all cases not prohibited by law.

    Answer: C Level: Hard LO: 4

38. Wide-spread adherence to ethical standards in an advanced market economy tends to result in all of the following except:
    A) higher prices.
    B) higher quality goods and services.
    C) greater variety of goods and services available for sale.
    D) safer products.

    Answer: A Level: Medium LO: 4

39. The Institute of Management Accountants (IMA) has developed ethical standards for management accountants. What four categories has the IMA classified these standards into?
    A) Reliability, Objectivity, Commitment, and Competence
    B) Objectivity, Integrity, Commitment, and Confidentiality
    C) Observation, Integrity, Closure, and Competence
    D) Competence, Objectivity, Integrity, and Confidentiality
    E) Reliability, Understandability, Flexibility, and Integrity

    Answer: D Level: Medium LO: 4

40. Samantha Galloway is a managerial accountant in the accounting department of Mustang Industries, Inc. Samantha has just discovered evidence that some of the corporation's marketing managers have been wrongfully inflating their expense reports in order to obtain higher reimbursements from the firm. According to the Institute of Management Accountants' Standards of Ethical Conduct, what should Samantha do upon discovering this evidence?
    A) notify the controller.
    B) notify the marketing managers involved.
    C) notify the president of the corporation.
    D) ignore the evidence because she is not part of the Marketing Department.

    Answer: A Level: Hard LO: 4

Chapter 2 Cost Terms, Concepts, and Classifications

True/False Questions

1. Manufacturing overhead is an indirect cost with respect to units of product.

   Answer: True Level: Medium LO: 1

2. Depreciation on office equipment would not be included in the cost of goods manufactured.

   Answer: True Level: Easy LO: 2,4

3. Rent on a factory building used in the production process would be classified as a period cost and as a fixed cost.

   Answer: False Level: Medium LO: 2,5

4. Period costs are found only in manufacturing companies, not in merchandising companies.

   Answer: False Level: Medium LO: 2

5. Depreciation on equipment a company uses in its selling and administrative activities would be classified as a product cost.

   Answer: False Level: Medium LO: 2

6. If the finished goods inventory increases between the beginning and the end of a period, then the cost of goods manufactured is smaller than the cost of goods sold.

   Answer: False Level: Hard LO: 3,4

7. The cost of goods manufactured is calculated by adding the amount of work in process at the end of the year to the cost of raw materials used, direct labor worked, and manufacturing overhead incurred for the year and then subtracting work in process at the beginning of the year.

   Answer: False Level: Medium LO: 4

8. A publisher that sells its books through agents who are paid a constant percentage commission on each book sold would classify the commissions as a fixed cost.

   Answer: False Level: Medium LO: 5

9. Variable costs per unit are affected by changes in activity.

   Answer: False Level: Easy LO: 5

10. A cost is either direct or indirect. The classification will not change if the cost object changes.

    Answer: False Level: Medium LO: 6

11. The amount that a manufacturing company could earn by renting unused portions of its warehouse is an example of an opportunity cost.

    Answer: True Level: Easy LO: 7

12. Labor fringe benefits may be charged to direct labor or manufacturing overhead while overtime premiums paid usually are considered a part of manufacturing overhead.

    Answer: True Level: Easy LO: 8 Appendix: 2A

13. The cost of idle time should be charged as direct labor of the job that is in process when the breakdown occurs.

    Answer: False Level: Medium LO: 8 Appendix: 2A

14. Internal failure costs result from identification of defects during the appraisal process. Such costs may include scrap, rejected products, rework, and downtime.

    Answer: True Level: Easy LO: 9 Appendix: 2B

15. ISO 9000 certification is relatively easy to achieve because little documentation on quality control procedures is needed.

    Answer: False Level: Easy LO: 11 Appendix: 2B

Multiple Choice Questions

16. Indirect labor is a part of:
    A) Prime cost.
    B) Conversion cost.
    C) Period cost.
    D) Nonmanufacturing cost.

    Answer: B Level: Medium LO: 1,2 Source: CPA, adapted

17. The cost of lubricants used to grease a production machine in a manufacturing company is an example of a(n):
    A) period cost.
    B) direct material cost.
    C) indirect material cost.
    D) none of the above.

    Answer: C Level: Easy LO: 1,2

18. The salary paid to the president of King Company would be classified on the income statement as a(n):
    A) administrative expense.
    B) direct labor cost.
    C) manufacturing overhead cost.
    D) selling expense.

    Answer: A Level: Easy LO: 1

19. Direct labor cost is a part of:

	Conversion cost	Prime cost
A)	No	No
B)	No	Yes
C)	Yes	Yes
D)	Yes	No

    Answer: C Level: Easy LO: 1 Source: CPA, adapted

20. Direct material cost is a:

	Conversion cost	Prime cost
A)	No	No
B)	No	Yes
C)	Yes	Yes
D)	Yes	No

Answer: B Level: Medium LO: 1 Source: CPA, adapted

21. Prime cost and conversion cost share what common element of total cost?
A) Direct materials.
B) Direct labor.
C) Variable overhead.
D) Fixed overhead.

Answer: B Level: Easy LO: 1 Source: CPA, adapted

22. Prime cost consists of:
A) direct labor and manufacturing overhead.
B) direct materials and manufacturing overhead.
C) direct materials and direct labor.
D) direct materials, direct labor and manufacturing overhead.

Answer: C Level: Easy LO: 1

23. Wages paid to a timekeeper in a factory are a:

	Prime cost	Conversion cost
A)	Yes	No
B)	Yes	Yes
C)	No	No
D)	No	Yes

Answer: D Level: Medium LO: 1 Source: CPA, adapted

24. Property taxes on a company's factory building would be classified as a(n):
A) product cost.
B) opportunity cost.
C) period cost.
D) variable cost.

Answer: A Level: Easy LO: 2,5,7

25. Depreciation on a personal computer used in the marketing department of a manufacturing firm would be classified as:
    A) a product cost that is fixed with respect to the company's output.
    B) a period cost that is fixed with respect to the company's output.
    C) a product cost that is variable with respect to the company's output.
    D) a period cost that is fixed with respect to the company's output.

    Answer: B Level: Medium LO: 2,5

26. The nursing station on the fourth floor of Central Hospital is responsible for the care of patients who have undergone orthopedic surgery. The costs of drugs administered by the nursing station to patients would be classified as:
    A) direct costs of the patients.
    B) indirect costs of the patients.
    C) overhead costs of the nursing station.
    D) period costs of the hospital.

    Answer: A Level: Hard LO: 2,6

27. All of the following would be classified as product costs except:
    A) property taxes on production equipment.
    B) insurance on factory machinery.
    C) salaries of the advertising staff.
    D) wages of machine operators.

    Answer: C Level: Easy LO: 2

28. Product costs appear on the balance sheet:
    A) only if goods are partially completed at the end of the period.
    B) only if goods are unsold at the end of a period.
    C) only if goods are partially completed or are unsold at the end of a period.
    D) only in merchandising firms.

    Answer: C Level: Medium LO: 2

29. Ross Corporation shipped finished goods to a customer on credit, but the sale was not recorded and the costs of the finished goods were incorrectly included on the period's balance sheet as part of the finished goods inventory. Which one of the following statements is correct concerning the effects of this error?
    A) Accounts receivable was not affected, inventory was overstated, sales were understated, and cost of goods sold was understated.
    B) Accounts receivable was understated, inventory was not affected, sales were understated, and cost of goods sold was understated.
    C) Accounts receivable was understated, inventory was overstated, sales were understated, and cost of goods sold was overstated.
    D) Accounts receivable was understated, inventory was overstated, sales were understated, and cost of goods sold was understated.

    Answer: D Level: Easy LO: 3 Source: CMA, adapted

30. Data for Cost A and Cost B are as follows:

	Number of Units Produced	*Unit Cost*	*Total Cost*
Cost A			
	1	?	$10
	10	?	$100
	100	?	$1,000
	1,000	?	$10,000
Cost B			
	1	$5,000	?
	10	$500	?
	100	$50	?
	1,000	$5	?

    Which of the above best describes the behavior of Costs A and B?
    A) Cost A is fixed, Cost B is variable.
    B) Cost A is variable, Cost B is fixed.
    C) Both Cost A and Cost B are variable.
    D) Both Cost A and Cost B are fixed.

    Answer: B Level: Medium LO: 5

31. Fixed costs expressed on a per unit basis:
    A) will increase with increases in activity.
    B) will decrease with increases in activity.
    C) are not affected by activity.
    D) should be ignored in making decisions since they cannot change.

    Answer: B Level: Medium LO: 5

32. The costs of staffing and operating the accounting department at Central Hospital would be considered by the Department of Surgery to be:
    A) direct costs.
    B) indirect costs.
    C) incremental costs.
    D) opportunity costs.

    Answer: B Level: Hard LO: 6,7

33. A cost incurred in the past that is not relevant to any current decision is classified as a(n):
    A) period cost.
    B) opportunity cost.
    C) sunk cost.
    D) differential cost.

    Answer: C Level: Easy LO: 7

34. Differential costs can:
    A) only be fixed costs.
    B) only be variable costs.
    C) be either fixed or variable.
    D) be incremental but not decremental.

    Answer: C Level: Easy LO: 7

35. John Johnson decided to leave his former job where he earned $12 per hour to go to a new job where he will earn $13 per hour. In the decision process, the former wage of $12 per hour would be classified as a(n):
    A) sunk cost.
    B) direct cost.
    C) fixed cost.
    D) opportunity cost.

    Answer: D Level: Easy LO: 7

36. The term that refers to costs incurred in the past that are not relevant to a decision is:
    A) marginal cost.
    B) indirect cost.
    C) period cost.
    D) sunk cost.

    Answer: D Level: Easy LO: 7

37. Lathe operators at KF Manufacturing are hourly employees who are paid time and a half for hours worked in excess of 40 hours per week. Lester is a lathe operator who worked 45 hours during the current week and had no idle time. The correct accounting for the amounts paid to Lester would be:
    A) charge only the overtime premium earned to the overhead account.
    B) charge the hourly wage earned plus the overtime premium earned to the overhead account.
    C) charge only the overtime premium earned to the direct labor cost for the project Lester was working on when the overtime was incurred.
    D) charge the hourly wage earned plus the overtime premium earned to the direct labor cost for the project Lester was working on when the overtime was incurred.

    Answer: A Level: Medium LO: 8 Appendix: 2A

38. The controller of the recently organized Crandall Company is considering the two methods listed below for accounting for labor fringe benefits. Which of the two methods is considered acceptable?

    Method A: Treat all labor fringe benefits as indirect labor by adding them in total to manufacturing overhead.

    Method B: Treat labor fringe benefits that relate to direct labor as additional direct labor cost and fringe benefits relating to indirect labor as part of manufacturing overhead.

    A) Only Method A is acceptable.
    B) Only Method B is acceptable.
    C) Both Method A and Method B are acceptable.
    D) Neither Method A nor Method B is acceptable; labor fringe benefits should be treated as period expenses and should be charged off as incurred.

    Answer: C Level: Medium LO: 8 Appendix: 2A

39. Which of the following would be classified as a prevention cost on a quality cost report?
    A) Disposal of defective products.
    B) Net cost of spoilage.
    C) Depreciation of test equipment.
    D) Technical support provided to suppliers.

    Answer: D Level: Medium LO: 9,10 Appendix: 2B

40. Which of the following would be classified as a prevention cost on a quality cost report?
    A) Debugging software errors.
    B) Quality training.
    C) Test and inspection of incoming materials.
    D) Cost of field servicing and handling complaints.

    Answer: B Level: Medium LO: 9,10 Appendix: 2B

41. Which of the following would be classified as a prevention cost on a quality cost report?
    A) Supplies used in testing and inspection.
    B) Debugging software errors.
    C) Quality improvement projects.
    D) Lost sales arising from a reputation for poor quality.

    Answer: C Level: Medium LO: 9,10 Appendix: 2B

42. Which of the following would be classified as an appraisal cost on a quality cost report?
    A) Final product testing and inspection.
    B) Net cost of spoilage.
    C) Repairs and replacements beyond the warranty period.
    D) Rework labor and overhead.

    Answer: A Level: Medium LO: 9,10 Appendix: 2B

43. Which of the following would be classified as an appraisal cost on a quality cost report?
    A) Quality improvement projects.
    B) Supplies used in testing and inspection.
    C) Audits of the effectiveness of the quality system.
    D) Quality data gathering, analysis, and reporting.

    Answer: B Level: Medium LO: 9,10 Appendix: 2B

44. Which of the following would be classified as an appraisal cost on a quality cost report?
    A) Maintenance of test equipment.
    B) Re-entering data because of keying errors.
    C) Debugging software errors.
    D) Warranty repairs and replacements.

    Answer: A Level: Medium LO: 9,10 Appendix: 2B

45. Which of the following would be classified as an internal failure cost on a quality cost report?
    A) Quality improvement projects.
    B) Supervision of testing and inspection activities.
    C) Debugging software errors.
    D) Warranty repairs and replacements.

    Answer: C Level: Medium LO: 9,10 Appendix: 2B

46. Which of the following would be classified as an internal failure cost on a quality cost report?
    A) Final product testing and inspection.
    B) Warranty repairs and replacements.
    C) Depreciation of test equipment.
    D) Debugging software errors.

    Answer: D Level: Medium LO: 9,10 Appendix: 2B

47. Which of the following would be classified as an internal failure cost on a quality cost report?
    A) Rework labor and overhead.
    B) Cost of field servicing and handling complaints.
    C) Technical support provided to suppliers.
    D) Lost sales arising from a reputation for poor quality.

    Answer: A Level: Medium LO: 9,10 Appendix: 2B

48. Which of the following would be classified as an external failure cost on a quality cost report?
    A) Reentering data because of keying errors.
    B) Customer returns arising from quality problems.
    C) Test and inspection of in-process goods.
    D) Rework labor and overhead.

    Answer: B Level: Medium LO: 9,10 Appendix: 2B

49. Which of the following would be classified as an external failure cost on a quality cost report?
    A) Repairs and replacements beyond the warranty period.
    B) Technical support provided to suppliers.
    C) Quality improvement projects.
    D) Rework labor and overhead.

    Answer: A Level: Medium LO: 9,10 Appendix: 2B

50. Which of the following would be classified as an external failure cost on a quality cost report?
    A) Final product testing and inspection.
    B) Disposal of defective products.
    C) Supervision of testing and inspection activities.
    D) Cost of field servicing and handling complaints.

    Answer: D Level: Medium LO: 9,10 Appendix: 2B

51. Inspection of products would be classified as a(n):
    A) prevention cost.
    B) appraisal cost.
    C) internal failure cost.
    D) external failure cost.

    Answer: B Level: Medium LO: 9 Appendix: 2B

52. The cost of warranty repairs would be classified as a(n):
    A) prevention cost.
    B) appraisal cost.
    C) internal failure cost.
    D) external failure cost.

    Answer: D Level: Easy LO: 9 Appendix: 2B

53. The cost of quality training would be classified as a(n):
    A) prevention cost.
    B) appraisal cost.
    C) internal failure cost.
    D) external failure cost.

    Answer: A Level: Easy LO: 9 Appendix: 2B

54. The cost of labor time required to rework defective units would be classified as a(n):
    A) prevention cost.
    B) appraisal cost.
    C) internal failure cost.
    D) external failure cost.

    Answer: C Level: Easy LO: 9 Appendix: 2B

55. Which of the following is (are) categorized as internal failure cost(s)?

    I. Rework.
    II. Responding to customer complaints.
    III. Statistical quality control procedures.

    A) I only.
    B) II only.
    C) III only.
    D) I, II, and III.

    Answer: A Level: Medium LO: 9 Source: CPA, adapted Appendix: 2B

56. Adolphson Corporation has provided the following summary of its quality cost report for the last two years:

Summary of Quality Cost Report
(in thousands)

	This Year	*Last Year*	*% Change*
Prevention costs	$ 300	$ 200	+50
Appraisal costs	315	210	+50
Internal failure costs	114	190	-40
External failure costs	621	1,200	-48
Total quality costs	$1,350	$1,800	-25

On the basis of this report, which one of the following statements is most likely correct?

A) An increase in prevention and appraisal costs resulted in fewer defects, and therefore, resulted in a decrease in internal and external failure costs.
B) A decrease in internal and external failure costs resulted in less need for prevention and appraisal costs.
C) Quality costs such as scrap and rework decreased by 48%.
D) Quality costs such as returns and repairs under warranty decreased by 40%.

Answer: A Level: Medium LO: 10 Source: CMA, adapted Appendix: 2B

57. The following costs were incurred in January:

Direct materials	$33,000
Direct labor	$28,000
Manufacturing overhead	$69,000
Selling expenses	$16,000
Administrative expenses	$21,000

Conversion costs during the month totaled:

A) $97,000
B) $167,000
C) $102,000
D) $61,000

Answer: A Level: Medium LO: 1,2

58. The following costs were incurred in February:

Direct materials	$43,000
Direct labor	$16,000
Manufacturing overhead	$37,000
Selling expenses	$17,000
Administrative expenses	$26,000

Conversion costs during the month totaled:
A) $59,000
B) $80,000
C) $53,000
D) $139,000

Answer: C Level: Medium LO: 1,2

59. The following costs were incurred in March:

Direct materials	$21,000
Direct labor	$17,000
Manufacturing overhead	$67,000
Selling expenses	$16,000
Administrative expenses	$15,000

Conversion costs during the month totaled:
A) $88,000
B) $38,000
C) $136,000
D) $84,000

Answer: D Level: Medium LO: 1,2

60. The following costs were incurred in January:

Direct materials	$39,000
Direct labor	$26,000
Manufacturing overhead	$21,000
Selling expenses	$14,000
Administrative expenses	$27,000

Prime costs during the month totaled:
A) $86,000
B) $65,000
C) $47,000
D) $127,000

Answer: B Level: Medium LO: 1,2

61. The following costs were incurred in February:

Direct materials	$39,000
Direct labor	$18,000
Manufacturing overhead	$14,000
Selling expenses	$13,000
Administrative expenses	$29,000

Prime costs during the month totaled:
A) $71,000
B) $32,000
C) $113,000
D) $57,000

Answer: D Level: Medium LO: 1,2

62. The following costs were incurred in March:

Direct materials	$39,000
Direct labor.....	$24,000
Manufacturing overhead.....	$14,000
Selling expenses	$11,000
Administrative expenses.....	$19,000

Prime costs during the month totaled:
A) $63,000
B) $107,000
C) $38,000
D) $77,000

Answer: A Level: Medium LO: 1,2

63. Aable Company's manufacturing overhead is 20% of its total conversion costs. If direct labor is $45,000 and if direct materials are $53,000, the manufacturing overhead is:
A) $11,250
B) $13,250
C) $180,000
D) $24,500

Answer: A Level: Hard LO: 1

64. Abair Company's manufacturing overhead is 20% of its total conversion costs. If direct labor is $38,000 and if direct materials are $35,000, the manufacturing overhead is:
A) $18,250
B) $9,500
C) $8,750
D) $152,000

Answer: B Level: Hard LO: 1

65. Abbey Company's manufacturing overhead is 60% of its total conversion costs. If direct labor is $35,000 and if direct materials are $55,000, the manufacturing overhead is:
A) $135,000
B) $23,333
C) $82,500
D) $52,500

Answer: D Level: Hard LO: 1

66. During the month of January, direct labor cost totaled $17,000 and direct labor cost was 60% of prime cost. If total manufacturing costs during January were $82,000, the manufacturing overhead was:
A) $11,333
B) $53,667
C) $28,333
D) $65,000

Answer: B Level: Hard LO: 1

67. During the month of February, direct labor cost totaled $13,000 and direct labor cost was 40% of prime cost. If total manufacturing costs during February were $80,000, the manufacturing overhead was:
A) $32,500
B) $19,500
C) $67,000
D) $47,500

Answer: D Level: Hard LO: 1

68. During the month of March, direct labor cost totaled $17,000 and direct labor cost was 70% of prime cost. If total manufacturing costs during March were $88,000, the manufacturing overhead was:
A) $24,286
B) $71,000
C) $63,714
D) $7,286

Answer: C Level: Hard LO: 1

69. Knowel Company's direct labor is 40 percent of its conversion cost. If the manufacturing overhead cost for the last period was $60,000 and the direct materials cost was $30,000, the direct labor cost was:
A) $90,000
B) $20,000
C) $60,000
D) $40,000

Answer: D Level: Hard LO: 1

70. In January direct labor was 40% percent of conversion cost. If the manufacturing overhead cost for the month was $78,000 and the direct materials cost was $22,000, the direct labor cost was:
A) $14,667
B) $52,000
C) $33,000
D) $117,000

Answer: B Level: Hard LO: 1

71. In February direct labor was 60% percent of conversion cost. If the manufacturing overhead cost for the month was $78,000 and the direct materials cost was $22,000, the direct labor cost was:
A) $52,000
B) $14,667
C) $117,000
D) $33,000

Answer: C Level: Hard LO: 1

72. In March direct labor was 60% percent of conversion cost. If the manufacturing overhead cost for the month was $38,000 and the direct materials cost was $32,000, the direct labor cost was:
A) $21,333
B) $48,000
C) $25,333
D) $57,000

Answer: D Level: Hard LO: 1

73. Crossland Company's direct labor cost is 30% of its conversion cost. If the manufacturing overhead cost for the last period was $49,000 and the direct materials cost was $20,000, the direct labor cost was:
A) $ 6,000
B) $14,700
C) $21,000
D) $34,000

Answer: C Level: Hard LO: 1

74. CF Company manufactures wooden rocking chairs. CF identified the following three material costs in its production process for July: $100,000 for springs for the rocking mechanism; two springs at a cost of $10 each are used in each chair; $1,700 for glue used as needed from one gallon containers; and $500 for stain used to touch up spots on the chairs. The total cost that should have been assigned to indirect material for July was:
A) $102,200
B) $500
C) $2,200
D) $1,700

Answer: C Level: Medium LO: 1

75. Fab Co. manufactures textiles. Fab's manufacturing costs last year included the following salaries and wages:

Loom operators.....	$120,000
Factory foremen	$45,000
Machinery repairmen	$30,000

What is the amount of direct labor included in this list?
A) $195,000
B) $165,000
C) $150,000
D) $120,000

Answer: D Level: Medium LO: 1 Source: CPA, adapted

76. A manufacturing company has provided the following cost data for a recent period:

Direct materials	$8,000
Manufacturing overhead	$12,000
Direct labor	$10,000
Increase in work-in-process	$4,000

Prime cost for the period was:
A) $18,000
B) $26,000
C) $30,000
D) $34,000

Answer: A Level: Medium LO: 1 Source: CIMA, adapted

77. A manufacturing company prepays its insurance coverage for a three-year period. The premium for the three years is $3,000 and is paid at the beginning of the first year. Three-fourths of the premium applies to factory operations and one-fourth applies to selling and administrative activities. What amounts should be considered product and period costs respectively for the first year of coverage?

	Product	Period
A)	$1,000	$0
B)	$250	$750
C)	$2,250	$750
D)	$750	$250

Answer: D Level: Hard LO: 2

78. Last month a manufacturing company had the following operating results:

Beginning finished goods inventory	$72,000
Ending finished goods inventory	$66,000
Sales	$465,000
Gross margin	$88,000

What was the cost of goods manufactured for the month?
A) $371,000
B) $459,000
C) $383,000
D) $377,000

Answer: A Level: Hard LO: 3,4

79. Last month a manufacturing company had the following operating results:

Beginning finished goods inventory	$74,000
Ending finished goods inventory	$50,000
Sales	$438,000
Gross margin	$63,000

What was the cost of goods manufactured for the month?
A) $375,000
B) $414,000
C) $399,000
D) $351,000

Answer: D Level: Hard LO: 3,4

80. Gabert Inc. is a merchandising company. Last month the company's merchandise purchases totaled $68,000. The company's beginning merchandise inventory was $17,000 and its ending merchandise inventory was $13,000. What was the company's cost of goods sold for the month?
A) $72,000
B) $68,000
C) $98,000
D) $64,000

Answer: A Level: Easy LO: 3

81. Haag Inc. is a merchandising company. Last month the company's cost of goods sold was $86,000. The company's beginning merchandise inventory was $20,000 and its ending merchandise inventory was $21,000. What was the total amount of the company's merchandise purchases for the month?
A) $86,000
B) $127,000
C) $87,000
D) $85,000

Answer: C Level: Medium LO: 3

82. During February, the cost of goods manufactured was $83,000. The beginning finished goods inventory was $14,000 and the ending finished goods inventory was $13,000. What was the cost of goods sold for the month?
A) $83,000
B) $110,000
C) $82,000
D) $84,000

Answer: D Level: Easy LO: 3

83. During March, the cost of goods manufactured was $62,000. The beginning finished goods inventory was $11,000 and the ending finished goods inventory was $19,000. What was the cost of goods sold for the month?
A) $70,000
B) $92,000
C) $54,000
D) $62,000

Answer: C Level: Easy LO: 3

84. The following information is taken from the records of CL Company for last year:

Direct materials	$5,000
Manufacturing overhead	$6,000
Total manufacturing costs	$17,000
Beginning work in process inventory	$1,000
Cost of goods manufactured	$15,000

What are the correct amounts for direct labor and ending work in process inventory?

	Direct Labor	Ending Work in Process
A)	$12,000	$2,000
B)	$11,000	$2,000
C)	$6,000	$1,000
D)	$6,000	$3,000

Answer: D Level: Hard LO: 4

85. The following information is taken from the records of DW Company for last year:

Direct materials	$8,000
Direct labor	$3,000
Manufacturing overhead	$11,000
Ending work in process inventory	$5,000
Cost of goods manufactured	$19,000

The amount of beginning work in process inventory is:
A) $24,000
B) $2,000
C) $22,000
D) $3,000

Answer: B Level: Hard LO: 4

86. Using the following data for February, calculate the cost of goods manufactured:

Direct materials	$36,000
Direct labor	$20,000
Manufacturing overhead	$19,000
Beginning work in process inventory	$10,000
Ending work in process inventory	$13,000

The cost of goods manufactured was:
A) $78,000
B) $85,000
C) $72,000
D) $75,000

Answer: C Level: Medium LO: 4

87. Using the following data for March, calculate the cost of goods manufactured:

Direct materials	$29,000
Direct labor	$19,000
Manufacturing overhead	$27,000
Beginning work in process inventory	$11,000
Ending work in process inventory	$12,000

The cost of goods manufactured was:
A) $74,000
B) $86,000
C) $76,000
D) $75,000

Answer: A Level: Medium LO: 4

88. Jacobs is employed as a machinist for an aircraft manufacturer. She is paid $15 per hour for regular time and time and a half for all work in excess of 40 hours per week. During the past week, Jacobs was idle for two hours due to machine breakdowns and was idle four hours due to materials shortages. Jacobs worked 40 hours last week with no overtime. The allocation of Jacobs' wages for the past week between direct labor cost and manufacturing overhead cost would be:

	Direct Labor	Manufacturing Overhead
A)	$600	$0
B)	$570	$30
C)	$540	$60
D)	$510	$90

Answer: D Level: Medium LO: 8 Appendix: 2A

89. Johnson is employed on the assembly line of a manufacturing company where he assembles a component part for one of the company's products. He is paid $14 per hour for regular time and time and a half for all work in excess of 40 hours per week. During the past week, Johnson worked a total of 50 hours and had no idle time. The allocation of Johnson's wages for the past week between direct labor cost and manufacturing overhead cost would be:

	Direct Labor	Manufacturing Overhead
A)	$770	$0
B)	$700	$70
C)	$560	$210
D)	$560	$0

Answer: B Level: Medium LO: 8 Appendix: 2A

Use the following to answer questions 90-91:

Clyde Company has provided the following data for the month of November:

Inventories	*November 1*	*November 30*
Raw materials	$17,000	?
Work in process	$14,000	$12,000
Finished goods	?	$9,000

Additional Data:

Sales revenue	$102,000
Direct labor costs	$10,000
Manufacturing overhead costs	$12,000
Selling expenses	$14,000
Administrative expenses	$16,000
Cost of goods manufactured	$40,000
Raw materials purchases	$10,000

90. The ending raw materials inventory was:
    A) $11,000
    B) $23,000
    C) $10,000
    D) $12,000

Answer: A Level: Hard LO: 2,4

91. If the net operating income was $40,000, then the beginning finished goods inventory was:
    A) $22,000
    B) $9,000
    C) $42,000
    D) $1,000

    Answer: D Level: Hard LO: 2,3,4

Use the following to answer questions 92-95:

The following data (in thousands of dollars) have been taken from the accounting records of Karsen Corporation for the just completed year.

Sales	$930
Raw materials inventory, beginning	$70
Raw materials inventory, ending	$40
Purchases of raw materials	$190
Direct labor	$150
Manufacturing overhead	$210
Administrative expenses	$90
Selling expenses	$120
Work in process inventory, beginning	$80
Work in process inventory, ending	$70
Finished goods inventory, beginning	$90
Finished goods inventory, ending	$140

Use these data to answer the following series of questions.

92. The cost of the raw materials used in production during the year (in thousands of dollars) was:
    A) $230
    B) $220
    C) $160
    D) $260

    Answer: B Level: Medium LO: 2,3,4

93. The cost of goods manufactured (finished) for the year (in thousands of dollars) was:
    A) $590
    B) $650
    C) $660
    D) $570

    Answer: A Level: Medium LO: 2,3,4

94. The cost of goods sold for the year (in thousands of dollars) was:
    A) $680
    B) $540
    C) $640
    D) $730

    Answer: B Level: Medium LO: 2,3,4

95. The net operating income for the year (in thousands of dollars) was:
    A) $180
    B) $170
    C) $390
    D) $190

    Answer: A Level: Medium LO: 2,3,4

Use the following to answer questions 96-99:

The following data (in thousands of dollars) have been taken from the accounting records of Karsten Corporation for the just completed year.

Sales	$990
Raw materials inventory, beginning	$70
Raw materials inventory, ending	$30
Purchases of raw materials	$100
Direct labor	$200
Manufacturing overhead	$160
Administrative expenses	$180
Selling expenses	$150
Work in process inventory, beginning	$40
Work in process inventory, ending	$70
Finished goods inventory, beginning	$150
Finished goods inventory, ending	$130

Use these data to answer the following series of questions.

96. The cost of the raw materials used in production during the year (in thousands of dollars) was:
    A) $130
    B) $170
    C) $140
    D) $60

    Answer: C Level: Medium LO: 2,3,4

97. The cost of goods manufactured (finished) for the year (in thousands of dollars) was:
    A) $530
    B) $540
    C) $470
    D) $570

    Answer: C Level: Medium LO: 2,3,4

98. The cost of goods sold for the year (in thousands of dollars) was:
    A) $490
    B) $450
    C) $620
    D) $600

    Answer: A Level: Medium LO: 2,3,4

99. The net operating income for the year (in thousands of dollars) was:
    A) $170
    B) $140
    C) $500
    D) $200

    Answer: A Level: Medium LO: 2,3,4

Chapter 2 Cost Terms, Concepts, and Classifications

Use the following to answer questions 100-103:

The following data (in thousands of dollars) have been taken from the accounting records of Karstone Corporation for the just completed year.

Sales	$880
Raw materials inventory, beginning	$20
Raw materials inventory, ending	$30
Purchases of raw materials	$150
Direct labor	$180
Manufacturing overhead	$230
Administrative expenses	$100
Selling expenses	$130
Work in process inventory, beginning	$80
Work in process inventory, ending	$30
Finished goods inventory, beginning	$120
Finished goods inventory, ending	$100

Use these data to answer the following series of questions.

100. The cost of the raw materials used in production during the year (in thousands of dollars) was:
A) $180
B) $140
C) $160
D) $170

Answer: B Level: Medium LO: 2,3,4

101. The cost of goods manufactured (finished) for the year (in thousands of dollars) was:
A) $580
B) $600
C) $500
D) $630

Answer: B Level: Medium LO: 2,3,4

102. The cost of goods sold for the year (in thousands of dollars) was:
A) $620
B) $580
C) $720
D) $700

Answer: A Level: Medium LO: 2,3,4

103. The net operating income for the year (in thousands of dollars) was:
A) $260
B) $30
C) $90
D) ($30)

Answer: B Level: Medium LO: 2,3,4

Use the following to answer questions 104-105:

The manufacturing operations of QC Company had the following inventory balances for the month of March:

Inventories	*March 1*	*March 31*
Raw materials.....	$10,000	$12,000
Work in process.....	$6,000	$7,000
Finished goods	$30,000	$22,000

104. If the company purchased $18,000 of raw materials during March, what was the cost of raw materials used in production?
A) $16,000
B) $20,000
C) $41,000
D) $19,000

Answer: A Level: Medium LO: 4

105. If the company transferred $38,000 of completed goods from work in process to finished goods during March, what was the amount of the cost of goods sold?
A) $38,000
B) $43,000
C) $30,000
D) $46,000

Answer: D Level: Medium LO: 3

Use the following to answer questions 106-107:

Servix, Inc., produces water pumps. Each water pump contains a small valve that costs $5. During May, 600 valves were drawn from the supply room and installed in water pumps in the production process. Eighty percent of these units were completed and transferred into finished goods warehouses. Of the units completed, thirty percent were still unsold at the end of the month. There were no beginning inventories.

106. The cost of valves in work in process at the end of May would be:
A) $2,400
B) $3,000
C) $600
D) $720

Answer: C Level: Easy LO: 4

107. The cost of valves in cost of goods sold for May would be:
A) $1,680
B) $2,100
C) $900
D) $720

Answer: A Level: Easy LO: 3

Use the following to answer questions 108-109:

The manufacturing operations of Jones Company had the following inventory balances for the month of March:

Inventories	*March 1*	*March 31*
Raw materials.....	$12,000	$14,000
Work in process.....	$8,000	$9,000
Finished goods	$32,000	$25,000

108. If the company purchased $20,000 of raw materials during March, what was the cost of raw materials used in production?
A) $24,000
B) $22,000
C) $32,000
D) $18,000

Answer: D Level: Medium LO: 4

109. If the company transferred $40,000 of completed goods from work in process to finished goods during March, what was the amount of the cost of goods sold?
A) $47,000
B) $40,000
C) $33,000
D) $44,000

Answer: A Level: Medium LO: 4

Use the following to answer questions 110-111:

At a sales volume of 30,000 units, Carne Company's total fixed costs are $30,000 and total variable costs are $45,000. The relevant range is 20,000 to 40,000 units.

110. If Carne Company were to sell 32,000 units, the total expected cost would be:
A) $75,000
B) $78,000
C) $80,000
D) $77,000

Answer: B Level: Easy LO: 5

111. If Carne Company were to sell 40,000 units, the total expected cost per unit would be:
A) $2.50
B) $2.25
C) $2.13
D) $1.88

Answer: B Level: Easy LO: 5

Use the following to answer questions 112-115:

Marrell is employed on the assembly line of a manufacturing company where she assembles a component part for one of the company's products. She is paid $16 per hour for regular time and time and a half for all work in excess of 40 hours per week.

112. Marrell works 45 hours during a week in which there was no idle time. The allocation of Marrell's wages for the week as between direct labor cost and manufacturing overhead cost would be:

	Direct Labor	Manufacturing Overhead
A)	$760	$0
B)	$720	$40
C)	$640	$80
D)	$610	$40

Answer: B Level: Medium LO: 8 Appendix: 2A

113. Marrell works 50 hours in a given week but is idle for 4 hours during the week due to equipment breakdowns. The allocation of Marrell's wages for the week as between direct labor cost and manufacturing overhead cost would be:

	Direct Labor	Manufacturing Overhead
A)	$816	$64
B)	$800	$80
C)	$736	$144
D)	$640	$160

Answer: C Level: Medium LO: 8 Appendix: 2A

114. Marrell's employer offers fringe benefits that cost the company $4 for each hour of employee time (either regular or overtime). During a given week, Marrell works 48 hours but is idle for 3 hours due to material shortages. The company treats all fringe benefits as part of manufacturing overhead. The allocation of Marrell's wages for the week between the direct labor cost and manufacturing overhead would be:

	Direct Labor	Manufacturing Overhead
A)	$960	$64
B)	$768	$256
C)	$720	$304
D)	$640	$320

Answer: C Level: Medium LO: 8 Appendix: 2A

115. Marrell's employer offers fringe benefits that cost the company $4 for each hour of employee time (either regular or overtime). During a given week, Marrell works 48 hours but is idle for 3 hours due to material shortages. The company treats all fringe benefits relating to direct labor as added direct labor cost. The allocation of Marrell's wages for the week between direct labor cost and manufacturing overhead would be:

	Direct Labor	Manufacturing Overhead
A)	$832	$128
B)	$900	$124
C)	$912	$112
D)	$960	$64

Answer: B Level: Medium LO: 8 Appendix: 2A

Use the following to answer questions 116-119:

Eakle Company's quality cost report is to be based on the following data:

Supervision of testing and inspection activities	$29,000
Warranty repairs and replacements	$12,000
Net cost of scrap	$53,000
Test and inspection of incoming materials	$23,000
Technical support provided to suppliers	$71,000
Disposal of defective products	$94,000
Quality data gathering, analysis, and reporting	$47,000
Liability arising from defective products	$75,000
Depreciation of test equipment	$22,000

116. What would be the total prevention cost appearing on the quality cost report?
A) $118,000
B) $93,000
C) $76,000
D) $59,000

Answer: A Level: Medium LO: 9,10 Appendix: 2B

117. What would be the total appraisal cost appearing on the quality cost report?
A) $45,000
B) $52,000
C) $74,000
D) $76,000

Answer: C Level: Medium LO: 9,10 Appendix: 2B

118. What would be the total internal failure cost appearing on the quality cost report?
A) $106,000
B) $147,000
C) $75,000
D) $128,000

Answer: B Level: Medium LO: 9,10 Appendix: 2B

119. What would be the total external failure cost appearing on the quality cost report?
A) $426,000
B) $234,000
C) $106,000
D) $87,000

Answer: D Level: Medium LO: 9,10 Appendix: 2B

Use the following to answer questions 120-123:

Ealsy Company's quality cost report is to be based on the following data:

Maintenance of test equipment	$95,000
Cost of field servicing and handling complaints	$17,000
Statistical process control activities	$77,000
Net cost of scrap	$62,000
Downtime caused by quality problems	$23,000
Technical support provided to suppliers	$93,000
Depreciation of test equipment	$81,000
Supplies used in testing and inspection	$33,000
Warranty repairs and replacements	$24,000

120. What would be the total prevention cost appearing on the quality cost report?
A) $172,000
B) $170,000
C) $174,000
D) $94,000

Answer: B Level: Medium LO: 9,10 Appendix: 2B

121. What would be the total appraisal cost appearing on the quality cost report?
A) $114,000
B) $95,000
C) $128,000
D) $209,000

Answer: D Level: Medium LO: 9,10 Appendix: 2B

122. What would be the total internal failure cost appearing on the quality cost report?
A) $85,000
B) $143,000
C) $40,000
D) $86,000

Answer: A Level: Medium LO: 9,10 Appendix: 2B

123. What would be the total external failure cost appearing on the quality cost report?
A) $41,000
B) $505,000
C) $126,000
D) $40,000

Answer: A Level: Medium LO: 9,10 Appendix: 2B

Use the following to answer questions 124-127:

Eames Company's quality cost report is to be based on the following data:

Technical support provided to suppliers	$20,000
Test and inspection of in-process goods	$67,000
Depreciation of test equipment	$68,000
Quality data gathering, analysis, and reporting	$46,000
Warranty repairs and replacements	$97,000
Debugging software errors	$22,000
Downtime caused by quality problems	$95,000
Returns arising from quality problems	$12,000
Supervision of testing and inspection activities.	$24,000

124. What would be the total prevention cost appearing on the quality cost report?
A) $44,000
B) $66,000
C) $32,000
D) $113,000

Answer: B Level: Medium LO: 9,10 Appendix: 2B

125. What would be the total appraisal cost appearing on the quality cost report?
A) $163,000
B) $135,000
C) $159,000
D) $92,000

Answer: C Level: Medium LO: 9,10 Appendix: 2B

126. What would be the total internal failure cost appearing on the quality cost report?
A) $162,000
B) $34,000
C) $117,000
D) $192,000

Answer: C Level: Medium LO: 9,10 Appendix: 2B

127. What would be the total external failure cost appearing on the quality cost report?
A) $226,000
B) $451,000
C) $109,000
D) $34,000

Answer: C Level: Medium LO: 9,10 Appendix: 2B

Use the following to answer questions 128-131:

Factoria Company's quality cost report is to be based on the following data:

Disposal of defective products	$41,000
Statistical process control activities	$29,000
Test and inspection of in-process goods	$65,000
Net cost of spoilage	$23,000
Test and inspection of incoming materials	$22,000
Warranty repairs and replacements	$14,000
Downtime caused by quality problems	$56,000
Quality training	$42,000
Product recalls	$32,000

128. What would be the total prevention cost appearing on the quality cost report?
A) $71,000
B) $51,000
C) $107,000
D) $43,000

Answer: A Level: Medium LO: 9,10 Appendix: 2B

129. What would be the total appraisal cost appearing on the quality cost report?
A) $63,000
B) $87,000
C) $88,000
D) $158,000

Answer: B Level: Medium LO: 9,10 Appendix: 2B

130. What would be the total internal failure cost appearing on the quality cost report?
A) $120,000
B) $88,000
C) $70,000
D) $55,000

Answer: A Level: Medium LO: 9,10 Appendix: 2B

131. What would be the total external failure cost appearing on the quality cost report?
A) $88,000
B) $166,000
C) $324,000
D) $46,000

Answer: D Level: Medium LO: 9,10 Appendix: 2B

Use the following to answer questions 132-135:

Fadden Company's quality cost report is to be based on the following data:

Statistical process control activities	$97,000
Depreciation of test equipment	$87,000
Supplies used in testing and inspection	$48,000
Re-entering data because of keying errors	$12,000
Debugging software errors	$73,000
Quality circles	$84,000
Net cost of spoilage	$85,000
Returns arising from quality problems	$28,000
Cost of field servicing and handling complaints	$65,000

132. What would be the total prevention cost appearing on the quality cost report?
A) $184,000
B) $125,000
C) $132,000
D) $181,000

Answer: D Level: Medium LO: 9,10 Appendix: 2B

133. What would be the total appraisal cost appearing on the quality cost report?
A) $133,000
B) $135,000
C) $99,000
D) $316,000

Answer: B Level: Medium LO: 9,10 Appendix: 2B

134. What would be the total internal failure cost appearing on the quality cost report?
A) $150,000
B) $170,000
C) $101,000
D) $133,000

Answer: B Level: Medium LO: 9,10 Appendix: 2B

135. What would be the total external failure cost appearing on the quality cost report?
A) $138,000
B) $93,000
C) $263,000
D) $579,000

Answer: B Level: Medium LO: 9,10 Appendix: 2B

Use the following to answer questions 136-139:

Fado Company's quality cost report is to be based on the following data:

Net cost of scrap	$18,000
Quality circles	$84,000
Depreciation of test equipment	$32,000
Returns arising from quality problems	$59,000
Systems development	$45,000
Supplies used in testing and inspection	$68,000
Product recalls	$34,000
Disposal of defective products	$62,000
Debugging software errors	$56,000

136. What would be the total prevention cost appearing on the quality cost report?
A) $129,000
B) $116,000
C) $143,000
D) $113,000

Answer: A Level: Medium LO: 9,10 Appendix: 2B

137. What would be the total appraisal cost appearing on the quality cost report?
A) $100,000
B) $124,000
C) $229,000
D) $50,000

Answer: A Level: Medium LO: 9,10 Appendix: 2B

138. What would be the total internal failure cost appearing on the quality cost report?
A) $121,000
B) $90,000
C) $124,000
D) $136,000

Answer: D Level: Medium LO: 9,10 Appendix: 2B

139. What would be the total external failure cost appearing on the quality cost report?
A) $458,000
B) $96,000
C) $93,000
D) $229,000

Answer: C Level: Medium LO: 9,10 Appendix: 2B

Essay Questions

140. The Plastechnics Company began operations several years ago. The company purchased a building and, since only half of the space was needed for operations, the remaining space was rented to another firm for rental revenue of $20,000 per year. The success of Plastechnics Company's product has resulted in the company needing more space. The renter's lease will expire next month and Plastechnics will not renew the lease in order to use the space to expand operations and meet demand.

The company's product requires materials that cost $25 per unit. The company employs a production supervisor whose salary is $2,000 per month. Production line workers are paid $15 per hour to manufacture and assemble the product. The company rents the equipment needed to produce the product at a rental cost of $1,500 per month. Additional equipment will be needed as production is expanded and the monthly rental charge for this equipment will be $900 per month. The building is depreciated on the straight-line basis at $9,000 per year.

The company spends $40,000 per year to market the product. Shipping costs for each unit are $20 per unit.

The company plans to liquidate several investments in order to expand production. These investments currently earn a return of $8,000 per year.

Required:

Complete the answer sheet above by placing an "X" under each heading that identifies the cost involved. The "Xs" can be placed under more than one heading for a single cost, e.g., a cost might be a sunk cost, an overhead cost, and a product cost. An "X" can thus be placed under each of these headings opposite the cost.

	Variable Cost	*Fixed Cost*	*Direct Materials*	*Direct Labor*	*Manufact-uring Overhead*	*Period Cost*	*Oppor-tunity Cost*	*Sunk Cost*
Rental revenue								
Materials costs								
Production supervisor salary								
Production line workers wages								
Equipment rental								
Building depreciation								
Marketing costs								
Shipping costs								
Return on present investments								

Level: Medium LO: 1,2,5,7

Answer:

	Variable Cost	*Fixed Cost*	*Direct Materials*	*Direct Labor*	*Manufact-uring Overhead*	*Period Cost*	*Oppor-tunity Cost*	*Sunk Cost*
Rental revenue							X	
Materials costs	X		X					
Production supervisor salary		X			X			
Production line workers wages	X			X				
Equipment rental		X			X			
Building depreciation		X			X			
Marketing costs		X				X		
Shipping costs	X					X		
Return on present investments							X	

141. The following data (in thousands of dollars) have been taken from the accounting records of Larder Corporation for the just completed year.

Sales	$950
Purchases of raw materials	$170
Direct labor	$210
Manufacturing overhead	$200
Administrative expenses	$180
Selling expenses	$140
Raw materials inventory, beginning	$70
Raw materials inventory, ending	$80
Work in process inventory, beginning	$30
Work in process inventory, ending	$20
Finished goods inventory, beginning	$100
Finished goods inventory, ending	$70

Required:

a. Prepare a Schedule of Cost of Goods Manufactured in good form.
b. Compute the Cost of Goods Sold.
c. Using data from your answers above as needed, prepare an Income Statement in good form

Level: Medium LO: 1,3,4

Answer:

a. *Schedule of cost of goods manufactured*

Direct materials:	
Raw materials inventory, beginning	$ 70
Add: Purchases of raw materials	170
Raw materials available for use	240
Deduct: Raw materials inventory, ending	80
Raw materials used in production	160
Direct labor	210
Manufacturing overhead	200
Total manufacturing cost	570
Add: Work in process inventory, beginning.	30
	600
Deduct: Work in process inventory, ending	20
Cost of goods manufactured	$580

b. *Computation of cost of goods sold*

Finished goods inventory, beginning	$100
Add: Cost of goods manufactured	580
Goods available for sale	680
Deduct: Finished goods inventory, ending	70
Cost of goods sold	$610

c. *Income statement*

Sales	$950
Less: Cost of goods sold	610
Gross margin	340
Less: Administrative expenses	180
Less: Selling expenses	140
Net operating income	$ 20

142. The following data (in thousands of dollars) have been taken from the accounting records of Larop Corporation for the just completed year.

Sales	$870
Purchases of raw materials	$190
Direct labor	$200
Manufacturing overhead	$230
Administrative expenses	$150
Selling expenses	$140
Raw materials inventory, beginning	$10
Raw materials inventory, ending	$40
Work in process inventory, beginning	$20
Work in process inventory, ending	$50
Finished goods inventory, beginning	$90
Finished goods inventory, ending	$130

Required:

a. Prepare a Schedule of Cost of Goods Manufactured in good form.
b. Compute the Cost of Goods Sold.
c. Using data from your answers above as needed, prepare an Income Statement in good form

Level: Medium LO: 1,3,4

Answer:

a. *Schedule of cost of goods manuf*actured

Direct materials:	
Raw materials inventory, beginning	$ 10
Add: Purchases of raw materials	190
Raw materials available for use	200
Deduct: Raw materials inventory, ending	40
Raw materials used in production	160
Direct labor	200
Manufacturing overhead	230
Total manufacturing cost	590
Add: Work in process inventory, beginning.	20
	610
Deduct: Work in process inventory, ending	50
Cost of goods manufactured	$560

b. *Computation of cost of goods sold*

Finished goods inventory, beginning	$ 90
Add: Cost of goods manufactured	560
Goods available for sale	650
Deduct: Finished goods inventory, ending	130
Cost of goods sold	$520

c. *Income statement*

Sales	$870
Less: Cost of goods sold	520
Gross margin	350
Less: Administrative expenses	150
Less: Selling expenses	140
Net operating income	$ 60

143. Gagnon Company's quality cost report is to be based on the following data:

Maintenance of test equipment	$18,000
Test and inspection of incoming materials	$73,000
Systems development	$29,000
Product recalls	$91,000
Quality training	$25,000
Disposal of defective products	$55,000
Supervision of testing and inspection activities	$24,000
Warranty repairs and replacements	$58,000
Net cost of scrap	$23,000

Required:

Prepare a Quality Cost Report in good form with separate sections for prevention costs, appraisal costs, internal failure costs, and external failure costs.

Level: Medium LO: 9,10 Appendix: 2B

Answer:

Prevention costs	
Systems development	$ 29,000
Quality training	25,000
Total	54,000
Appraisal costs	
Test and inspection of incoming materials	73,000
Supervision of testing and inspection activities	24,000
Maintenance of test equipment	18,000
Total	115,000
Internal failure costs	
Disposal of defective products	55,000
Net cost of scrap	23,000
Total	78,000
External failure costs	
Warranty repairs and replacements	58,000
Product recalls	91,000
Total	149,000
Total quality cost	$396,000

144. Gagnet Company's quality cost report is to be based on the following data:

Liability arising from defective products	$82,000
Final product testing and inspection	$40,000
Returns arising from quality problems	$24,000
Technical support provided to suppliers	$52,000
Disposal of defective products	$98,000
Maintenance of test equipment	$53,000
Systems development	$67,000
Depreciation of test equipment	$11,000
Debugging software errors	$87,000

Required:

Prepare a Quality Cost Report in good form with separate sections for prevention costs, appraisal costs, internal failure costs, and external failure costs.

Level: Medium LO: 9,10 Appendix: 2B

Answer:

Prevention costs	
Technical support provided to suppliers	$ 52,000
Systems development	67,000
Total	119,000
Appraisal costs	
Depreciation of test equipment	11,000
Maintenance of test equipment	53,000
Final product testing and inspection	40,000
Total	104,000
Internal failure costs	
Debugging software errors	87,000
Disposal of defective products	98,000
Total	185,000
External failure costs	
Liability arising from defective products	82,000
Returns arising from quality problems	24,000
Total	106,000
Total quality cost	$514,000

145. Gaffney Company's quality cost report is to be based on the following data:

Final product testing and inspection	$60,000
Rework labor and overhead	$60,000
Statistical process control activities	$78,000
Quality data gathering, analysis, and reporting	$24,000
Returns arising from quality problems	$77,000
Liability arising from defective products	$89,000
Depreciation of test equipment	$62,000
Downtime caused by quality problems	$80,000
Supervision of testing and inspection activities	$11,000

Required:

Prepare a Quality Cost Report in good form with separate sections for prevention costs, appraisal costs, internal failure costs, and external failure costs.

Level: Medium LO: 9,10 Appendix: 2B

Answer:

Prevention costs	
Statistical process control activities	$ 78,000
Quality data gathering, analysis, and reporting	24,000
Total	102,000
Appraisal costs	
Supervision of testing and inspection activities	11,000
Final product testing and inspection	60,000
Depreciation of test equipment	62,000
Total	133,000
Internal failure costs	
Downtime caused by quality problems	80,000
Rework labor and overhead	60,000
Total	140,000
External failure costs	
Returns arising from quality problems	77,000
Liability arising from defective products	89,000
Total	166,000
Total quality cost	$541,000

146. Harvold Company's quality cost report is to be based on the following data:

Test and inspection of incoming materials	$71,000
Supplies used in testing and inspection	$51,000
Re-entering data because of keying errors	$60,000
Statistical process control activities	$82,000
Technical support provided to suppliers	$91,000
Disposal of defective products	$60,000
Lost sales due to poor quality	$87,000
Net cost of scrap	$85,000
Warranty repairs and replacements	$70,000

Required:

Prepare a Quality Cost Report in good form with separate sections for prevention costs, appraisal costs, internal failure costs, and external failure costs.

Level: Medium LO: 9,10 Appendix: 2B

Answer:

Prevention costs	
Technical support provided to suppliers	$ 91,000
Statistical process control activities	82,000
Total	173,000
Appraisal costs	
Supplies used in testing and inspection	51,000
Test and inspection of incoming materials	71,000
Total	122,000
Internal failure costs	
Net cost of scrap	85,000
Re-entering data because of keying errors	60,000
Disposal of defective products	60,000
Total	205,000
External failure costs	
Lost sales due to poor quality	87,000
Warranty repairs and replacements	70,000
Total	157,000
Total quality cost	$657,000

147. Hartlie Company's quality cost report is to be based on the following data:

Lost sales due to poor quality	$11,000
Rework labor and overhead	$75,000
Statistical process control activities	$26,000
Depreciation of test equipment	$16,000
Re-entering data because of keying errors	$86,000
Debugging software errors	$55,000
Quality data gathering, analysis, and reporting	$48,000
Supervision of testing and inspection activities	$12,000
Warranty repairs and replacements	$75,000

Required:

Prepare a Quality Cost Report in good form with separate sections for prevention costs, appraisal costs, internal failure costs, and external failure costs.

Level: Medium LO: 9,10 Appendix: 2B

Answer:

Prevention costs	
Statistical process control activities	$ 26,000
Quality data gathering, analysis, and reporting	48,000
Total	74,000
Appraisal costs	
Supervision of testing and inspection activities	12,000
Depreciation of test equipment	16,000
Total	28,000
Internal failure costs	
Re-entering data because of keying errors	86,000
Rework labor and overhead	75,000
Debugging software errors	55,000
Total	216,000
External failure costs	
Lost sales due to poor quality	11,000
Warranty repairs and replacements	75,000
Total	86,000
Total quality cost	$404,000

148. Hartness Company's quality cost report is to be based on the following data:

Depreciation of test equipment	$75,000
Rework labor and overhead	$11,000
Quality circles	$46,000
Quality training	$94,000
Test and inspection of incoming materials	$64,000
Product recalls	$71,000
Net cost of scrap	$12,000
Re-entering data because of keying errors	$52,000
Cost of field servicing and handling complaints	$25,000

Required:

Prepare a Quality Cost Report in good form with separate sections for prevention costs, appraisal costs, internal failure costs, and external failure costs.

Level: Medium LO: 9,10 Appendix: 2B

Answer:

Prevention costs	
Quality training	$ 94,000
Quality circles	46,000
Total	140,000
Appraisal costs	
Depreciation of test equipment	75,000
Test and inspection of incoming materials	64,000
Total	139,000
Internal failure costs	
Rework labor and overhead	11,000
Net cost of scrap	12,000
Re-entering data because of keying errors	52,000
Total	75,000
External failure costs	
Product recalls	71,000
Cost of field servicing and handling complaints	25,000
Total	96,000
Total quality cost	$450,000

Chapter 3 Systems Design: Job-Order Costing

True/False Questions

1. Process costing is used in those situations where many different products or services are produced each period to customer specifications.

   Answer: False Level: Easy LO: 1

2. The basic approach in job-order costing is to accumulate costs in a particular operation or department for an entire period (month, quarter, year) and then to divide this total by the number of units produced during the period.

   Answer: False Level: Easy LO: 1

3. If a company uses predetermined overhead rates, actual manufacturing overhead costs of a period will be recorded in the Manufacturing Overhead account, but they will not be recorded on the job cost sheets for the period.

   Answer: True Level: Medium LO: 2

4. In a job-order cost system, indirect labor is assigned to a job by using the labor time ticket as a source document.

   Answer: False Level: Medium LO: 2

5. The formula for computing the predetermined overhead rate is:
   Estimated total units in base ÷ Estimated total manufacturing costs

   Answer: False Level: Easy LO: 3

6. The fact that one department may be labor intensive while another department is machine intensive may explain in part the existence of multiple predetermined overhead rates in larger companies.

   Answer: True Level: Easy LO: 3

7. If a company closes any under- or overapplied overhead to the Cost of Goods Sold account, then Cost of Goods Sold will be credited if manufacturing overhead is overapplied for the period.

   Answer: True Level: Medium LO: 4,8

8. The following entry would be used to record the transfer of material from the storeroom to production if 80% of the material was direct material and 20% was indirect material:

Work in Process.....	40,000	
Manufacturing Overhead.....	10,000	
Raw Material.....		50,000

Answer: True Level: Easy LO: 4

9. If a job is not completed at the end of the year, then no manufacturing overhead cost should be applied to that job.

Answer: False Level: Medium LO: 5

10. When raw materials are purchased, they are recorded as an expense.

Answer: False Level: Medium LO: 7

11. In a job-order cost system, depreciation on factory equipment should be charged directly to the Work in Process account.

Answer: False Level: Medium LO: 7

12. The entire difference between the actual manufacturing overhead cost for a period and the applied manufacturing overhead cost is typically closed to the Work In Process account.

Answer: False Level: Easy LO: 8

13. If the actual manufacturing overhead costs for a period exceed the manufacturing overhead costs applied, then overhead would be considered to be overapplied.

Answer: False Level: Medium LO: 8

14. When the predetermined overhead rate is based on the level of activity at capacity, the overhead underapplied may be called the Cost of Unused Capacity and treated as a period expense.

Answer: True Level: Easy LO: 9 Appendix: 3A

15. The absorption cost approach is so named because it provides for the absorption of all manufacturing costs, fixed and variable, into units of product.

    Answer: True Level: Easy LO: 10

Multiple Choice Questions

16. Which of the following industries would be most likely to use a process costing system?
    A) Ship builder
    B) Movie studio
    C) Oil refinery
    D) Hospital

    Answer: C Level: Easy LO: 1

17. A process cost system is employed in those situations where:
    A) many different products, jobs, or batches of production are being produced each period.
    B) where manufacturing involves a single, homogeneous product that flows evenly through the production process on a continuous basis.
    C) a service is performed such as in a law firm or an accounting firm.
    D) full or absorption cost approach is not employed.

    Answer: B Level: Easy LO: 1

18. Emco Company uses direct labor cost as a basis for computing its predetermined overhead rate. In computing the predetermined overhead rate for last year, the company misclassified a portion of direct labor cost as indirect labor. The effect of this misclassification will be to:
    A) understate the predetermined overhead rate.
    B) overstate the predetermined overhead rate.
    C) have no effect on the predetermined overhead rate.
    D) cannot be determined from the information given.

    Answer: B Level: Medium LO: 3

19. Which of the following entries would record correctly the application of overhead cost?

A)	Work in Process	XXX	
	Accounts Payable		XXX
B)	Manufacturing Overhead	XXX	
	Accounts Payable		XXX
C)	Manufacturing Overhead	XXX	
	Work in Process.....		XXX
D)	Work in Process	XXX	
	Manufacturing Overhead.....		XXX

Answer: D Level: Easy LO: 4,5

20. The operations of Kalispell Company resulted in overapplied overhead for the month just completed. Which of the following journal entries can be correct if Kalispell allocates under- or overapplied overhead among accounts?

A)	Cost of Goods Sold	XXX	
	Manufacturing Overhead.....		XXX
B)	Manufacturing Overhead	XXX	
	Cost of Goods Sold.....		XXX
C)	Work in Process	XXX	
	Finished Goods	XXX	
	Cost of Goods Sold.....		XXX
	Manufacturing Overhead.....		XXX
D)	Manufacturing Overhead	XXX	
	Work in Process.....		XXX
	Finished Goods		XXX
	Cost of Goods Sold.....		XXX

Answer: D Level: Medium LO: 4,8

21. Which of the following entries would record correctly the monthly salaries earned by the top management of a manufacturing company?

A)	Manufacturing Overhead	XXX	
	Salaries and Wages Payable		XXX
B)	Salaries Expense	XXX	
	Salaries and Wages Payable		XXX
C)	Work in Process	XXX	
	Salaries and Wages Payable		XXX
D)	Salaries and Wages Payable.....	XXX	
	Salaries Expense		XXX

Answer: B Level: Easy LO: 4

22. The journal entry to record applying overhead during the production process is:

A)	Manufacturing Overhead	XXX	
	Work In Process.....		XXX
B)	Finished Goods	XXX	
	Manufacturing Overhead		XXX
C)	Manufacturing Overhead	XXX	
	Finished Goods		XXX
D)	Work In Process	XXX	
	Manufacturing Overhead		XXX

Answer: D Level: Easy LO: 4

23. When manufacturing overhead is applied to production, it is added to:
A) the Cost of Goods Sold account.
B) the Raw Materials account.
C) the Work in Process account.
D) the Finished Goods inventory account.

Answer: C Level: Easy LO: 5,7

24. Which of the following statements is true?

    I. Overhead application may be made slowly as a job is worked on.
    II. Overhead application may be made in a single application at the time of completion of the job.
    III. Overhead application should be made to any job not completed at year-end in order to properly value the work in process inventory.

    A) Only statement I is true.
    B) Only statement II is true.
    C) Both statements I and II are true.
    D) Statements I, II, and III are all true.

    Answer: D Level: Easy LO: 5

25. On the Schedule of Cost of Goods Manufactured, the final Cost of Goods Manufactured figure represents:
    A) the amount of cost charged to Work in Process during the period.
    B) the amount of cost transferred from Finished Goods to Cost of Goods Sold during the period.
    C) the amount of cost placed into production during the period.
    D) the amount of cost of goods completed during the current year whether they were started before or during the current year.

    Answer: D Level: Hard LO: 6

26. Under a job-order costing system, the dollar amount transferred from Work in Process to Finished Goods is the sum of the costs charged to all jobs:
    A) started in process during the period.
    B) in process during the period.
    C) completed and sold during the period.
    D) completed during the period.

    Answer: D Level: Medium LO: 7

27. If a company applies overhead to production on the basis of a predetermined rate, a debit balance in the Manufacturing Overhead account at the end of the period means that:
    A) actual overhead cost was greater than the amount charged to production.
    B) actual overhead cost was less than the amount of direct labor cost.
    C) more overhead cost has been charged to production than has been charged to finished goods during the period.
    D) actual overhead cost was less than the amount charged to production.

    Answer: A Level: Medium LO: 8

28. Overapplied overhead means that:
    A) the applied overhead cost was less than the actual overhead cost.
    B) the applied overhead cost was greater than the actual overhead cost.
    C) the estimated overhead cost was less than the actual overhead cost.
    D) the estimated overhead cost was less than the applied overhead cost.

    Answer: B Level: Easy LO: 8

29. A job order cost system uses a predetermined overhead rate based on estimated activity and estimated manufacturing overhead cost. At the end of the year, underapplied overhead might be explained by which of the following situations?

	Actual activity	*Actual manufacturing overhead costs*
A)	Greater than estimated	Greater than estimated
B)	Greater than estimated	Less than estimated
C)	Less than estimated	Greater than estimated
D)	Less than estimated	Less than estimated

    Answer: C Level: Medium LO: 8 Source: CPA, adapted

30. Departmental overhead rates are generally preferred to plant-wide overhead rates when:
    A) the activities of the various departments in the plant are not homogeneous.
    B) the activities of the various departments in the plant are homogeneous.
    C) most of the overhead costs are fixed.
    D) all departments in the plant are heavily automated.

    Answer: A Level: Easy LO: 10 Source: CMA, adapted

31. The Work in Process inventory account of a manufacturing company shows a balance of $18,000 at the end of an accounting period. The job cost sheets of the two uncompleted jobs show charges of $6,000 and $3,000 for materials, and charges of $4,000 and $2,000 for direct labor. From this information, it appears that the company is using a predetermined overhead rate, as a percentage of direct labor costs, of:
A) 50%
B) 200%
C) 300%
D) 20%

Answer: A Level: Medium LO: 2,3,5

32. Blackwood Co. uses a predetermined overhead rate based on direct labor cost to apply manufacturing overhead to jobs. The predetermined overhead rates for the year are 200% for Department A and 50% for Department B. Job 123, started and completed during the year, was charged with the following costs:

	Dept. A	*Dept. B*
Direct materials	$25,000	$5,000
Direct labor	?	$30,000
Manufacturing overhead	$40,000	?

The total manufacturing costs associated with Job 123 should be:
A) $135,000
B) $180,000
C) $195,000
D) $240,000
Source: CPA, adapted

Answer: A Level: Medium LO: 2,5

33. Fisher Company uses a predetermined overhead rate based on direct labor cost to apply manufacturing overhead to jobs. The following information about Fisher Company's Work in Process inventory account has been provided for the month of May:

May 1 balance	$26,000
Debits during May:	
Direct Materials.....	$40,000
Direct Labor	$50,000
Manufacturing Overhead.....	$37,500

During the month, Fisher Company's Work in Process inventory account was credited for $120,500, which represented the Cost of Goods Manufactured for the month. Only one job remained in process on May 31; this job had been charged with $9,600 of applied overhead cost. The amount of direct materials cost in the unfinished job would be:

A) $10,600
B) $16,700
C) $12,800
D) $23,400

Answer: A Level: Hard LO: 3,5,6,7

34. At the beginning of the year, manufacturing overhead for the year was estimated to be $477,590. At the end of the year, actual direct labor-hours for the year were 29,000 hours, the actual manufacturing overhead for the year was $472,590, and manufacturing overhead for the year was overapplied by $110. If the predetermined overhead rate is based on direct labor-hours, then the estimated direct labor-hours at the beginning of the year used in the predetermined overhead rate must have been:

A) 29,300 direct labor-hours
B) 28,987 direct labor-hours
C) 28,993 direct labor-hours
D) 29,000 direct labor-hours

Answer: A Level: Hard LO: 3,5,8

35. At the beginning of the year, manufacturing overhead for the year was estimated to be $670,700. At the end of the year, actual direct labor-hours for the year were 36,200 hours, the actual manufacturing overhead for the year was $665,700, and manufacturing overhead for the year was overapplied by $22,100. If the predetermined overhead rate is based on direct labor-hours, then the estimated direct labor-hours at the beginning of the year used in the predetermined overhead rate must have been:
A) 35,037 direct labor-hours
B) 35,300 direct labor-hours
C) 36,200 direct labor-hours
D) 33,874 direct labor-hours

Answer: B Level: Hard LO: 3,5,8

36. At the beginning of the year, manufacturing overhead for the year was estimated to be $670,530. At the end of the year, actual direct labor-hours for the year were 29,400 hours, the actual manufacturing overhead for the year was $665,530, and manufacturing overhead for the year was underapplied by $27,550. If the predetermined overhead rate is based on direct labor-hours, then the estimated direct labor-hours at the beginning of the year used in the predetermined overhead rate must have been:
A) 30,900 direct labor-hours
B) 29,400 direct labor-hours
C) 30,670 direct labor-hours
D) 31,939 direct labor-hours

Answer: A Level: Hard LO: 3,5,8

37. Bradbeer Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the estimated direct labor-hours were 17,500 hours. At the end of the year, actual direct labor-hours for the year were 16,000 hours, the actual manufacturing overhead for the year was $233,000, and manufacturing overhead for the year was underapplied by $15,400. The estimated manufacturing overhead at the beginning of the year used in the predetermined overhead rate must have been:
A) $249,375
B) $217,600
C) $228,000
D) $238,000

Answer: D Level: Hard LO: 3,5,8

38. Braam Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the estimated direct labor-hours were 11,500 hours. At the end of the year, actual direct labor-hours for the year were 9,700 hours, the actual manufacturing overhead for the year was $143,350, and manufacturing overhead for the year was underapplied by $18,220. The estimated manufacturing overhead at the beginning of the year used in the predetermined overhead rate must have been:
A) $164,023
B) $125,130
C) $148,350
D) $138,350

Answer: C Level: Hard LO: 3,5,8

39. Braaten Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the estimated direct labor-hours were 14,100 hours. At the end of the year, actual direct labor-hours for the year were 13,500 hours, the actual manufacturing overhead for the year was $291,100, and manufacturing overhead for the year was underapplied by $7,600. The estimated manufacturing overhead at the beginning of the year used in the predetermined overhead rate must have been:
A) $286,100
B) $296,100
C) $298,816
D) $283,500

Answer: B Level: Hard LO: 3,5,8

40. Cribb Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the estimated direct labor-hours were 17,900 hours and the total estimated manufacturing overhead was $341,890. At the end of the year, actual direct labor-hours for the year were 16,700 hours and the actual manufacturing overhead for the year was $336,890. Overhead at the end of the year was:
A) $22,920 underapplied
B) $17,920 overapplied
C) $17,920 underapplied
D) $22,920 overapplied

Answer: C Level: Medium LO: 3,5,8

41. Crich Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the estimated direct labor-hours were 21,800 hours and the total estimated manufacturing overhead was $497,040. At the end of the year, actual direct labor-hours for the year were 21,500 hours and the actual manufacturing overhead for the year was $492,040. Overhead at the end of the year was:
A) $6,840 overapplied
B) $6,840 underapplied
C) $1,840 underapplied
D) $1,840 overapplied

Answer: C Level: Medium LO: 3,5,8

42. Crick Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the estimated direct labor-hours were 14,400 hours and the total estimated manufacturing overhead was $355,680. At the end of the year, actual direct labor-hours for the year were 15,200 hours and the actual manufacturing overhead for the year was $350,680. Overhead at the end of the year was:
A) $24,760 underapplied
B) $24,760 overapplied
C) $19,760 underapplied
D) $19,760 overapplied

Answer: B Level: Medium LO: 3,5,8

43. Dagger Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the total estimated manufacturing overhead was $423,870. At the end of the year, actual direct labor-hours for the year were 19,400 hours, manufacturing overhead for the year was underapplied by $5,650, and the actual manufacturing overhead was $418,870. The predetermined overhead rate for the year must have been closest to:
A) $21.59
B) $20.76
C) $21.30
D) $21.85

Answer: C Level: Hard LO: 3,5,8

44. Daget Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the total estimated manufacturing overhead was $364,140. At the end of the year, actual direct labor-hours for the year were 24,000 hours, manufacturing overhead for the year was overapplied by $8,060, and the actual manufacturing overhead was $359,140. The predetermined overhead rate for the year must have been closest to:
A) $15.43
B) $15.30
C) $15.17
D) $14.96

Answer: B Level: Hard LO: 3,5,8

45. Dafoe Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the total estimated manufacturing overhead was $221,100. At the end of the year, actual direct labor-hours for the year were 14,400 hours, manufacturing overhead for the year was overapplied by $21,500, and the actual manufacturing overhead was $216,100. The predetermined overhead rate for the year must have been closest to:
A) $15.01
B) $17.73
C) $15.35
D) $16.50

Answer: D Level: Hard LO: 3,5,8

46. Juanita Corporation uses a job-order cost system and applies overhead on the basis of direct labor cost. At the end of October, Juanita had one job still in process. The job cost sheet for this job contained the following information:

Direct materials	$480
Direct labor	$150
Manufacturing overhead applied	$600

An additional $100 of labor was needed in November to complete this job. For this job, how much should Juanita have transferred to finished goods inventory in November when it was completed?
A) $1,330
B) $500
C) $1,230
D) $1,730

Answer: D Level: Medium LO: 3,5

47. Wall Company uses a predetermined overhead rate based on direct labor hours to apply manufacturing overhead to jobs. The company's estimated costs for the next year are:

Direct materials	$3,000
Direct labor	$20,000
Depreciation on factory equipment	$6,000
Rent on factory	$12,000
Sales salaries	$29,000
Factory utilities	$15,000
Indirect labor	$6,000

It is estimated that 10,000 direct labor hours will be worked during the year. The predetermined overhead rate will be:
A) $3.90
B) $5.90
C) $6.80
D) $9.10

Answer: A Level: Medium LO: 3

48. The following information relates to Spock Manufacturing Company:

Total estimated manufacturing overhead at beginning of year	$620,000
Total manufacturing overhead applied to production during the year	$625,000
Total manufacturing overhead incurred during the year	$618,000

The company closes out the balance in the Manufacturing Overhead to Cost of Goods Sold at the end of the year. In the journal entry to close out the balance, the company would:
A) debit cost of goods sold for $2,000
B) credit cost of goods sold for $2,000
C) credit cost of goods sold for $7,000
D) debit cost of goods sold for $7,000

Answer: C Level: Hard LO: 4,5,8

49. Rio Manufacturing Company uses a job order cost system. At the beginning of February, Rio only had one job in process, Job #594. The direct costs assigned to this job at that time were $800 of materials and $650 of labor. Job #594 was finished during February incurring additional direct costs of $120 for materials and $370 for labor. Job #595 was started and finished during February. The direct costs assigned to this job were $310 for materials and $190 for labor. Job #596 was started during February but was not finished by the end of the month. The direct costs assigned to this job were $740 for materials and $300 for labor. Rio applies manufacturing overhead to its products at a rate of 200% of direct labor cost. What is Rio's cost of goods manufactured for February?
A) $2,440
B) $3,750
C) $4,860
D) $6,500

Answer: C Level: Hard LO: 5,6

50. Serenje Manufacturing Company produces nameplates and uses a job-order cost system. The following amounts relate to nameplate production for the month of June:

Work in process inventory, June 1	$620
Cost of materials directly assigned to production during June	$1,800
Cost of labor directly assigned to production during June	$1,200
Cost of nameplates completed during June	$4,300

Serenje applies overhead at a predetermined overhead rate of 60% of direct material cost. At the end of June, only one job was in Work in Process inventory. This job had been charged with $150 of direct material cost. What is the direct labor cost assigned to this job?
A) $100
B) $160
C) $225
D) $530

Answer: B Level: Hard LO: 5,7

51. Dukes Company used a predetermined overhead rate this year of $2 per direct labor hour, based on an estimate of 20,000 direct labor hours to be worked during the year. Actual costs and activity during the year were:

Actual manufacturing overhead cost incurred.....	$38,000
Actual direct labor hours worked	18,500

The under- or overapplied overhead for the year was:
A) $1,000 underapplied
B) $1,000 overapplied
C) $3,000 underapplied
D) $3,000 overapplied

Answer: A Level: Easy LO: 5,8

52. Sargent Company applies overhead cost to jobs on the basis of 80 percent of direct labor cost. If Job 210 shows $10,000 of manufacturing overhead cost applied, how much was the direct labor cost on the job?
A) $12,500
B) $11,000
C) $8,000
D) $10,000

Answer: A Level: Medium LO: 5

53. In the Vasquez Company, any over- or underapplied overhead is closed out to Cost of Goods Sold. Last year, the company incurred $27,000 in actual manufacturing overhead cost, and applied $29,000 of overhead cost to jobs. The beginning and ending balances of Finished Goods were equal, and the Company's Cost of Goods Manufactured for the year totaled $71,000. Given this information, Cost of Goods Sold, after adjustment for any over- or underapplied overhead, for the year must have been:
A) $98,000
B) $73,000
C) $71,000
D) $69,000

Answer: D Level: Hard LO: 6,8

54. In reviewing the accounting records at year-end, Garff Company's accountant has determined that the following items and amounts were debited to the Manufacturing Overhead account during the year:

Factory supervisor's salary	$8,000
Sales commissions	$7,000
Vacation pay for the materials storeroom clerk	$2,000

Including the items listed above, the debits to the Manufacturing Overhead account totaled $245,000 for the year. Credits to the account totaled $240,000 for the year. Based on this information, if all entries had been made correctly during the year the Manufacturing Overhead account would have been:

A) overapplied by $4,000
B) overapplied by $12,000
C) underapplied by $5,000
D) overapplied by $2,000

Answer: D Level: Hard LO: 7,8

55. Compute the October cost of direct materials used if raw material purchases for the month were $30,000 and the inventories were as follows:

	Beginning	*Ending*
Direct materials	$7,000	$4,000
Work in Process	$6,000	$7,500
Finished goods	$10,000	$12,000

The cost of direct materials used would be:

A) $31,500
B) $29,500
C) $27,000
D) $33,000

Answer: D Level: Easy LO: 7

56. Hardin Company's manufacturing overhead account showed a $20,000 underapplied overhead balance on December 31. Other data as of December 31 appear below:

Cost of Goods Sold	$800,000
Overhead applied during the year included in Cost of Goods Sold	$200,000
Overhead applied during the year in the ending balances of:	
Work in Process inventory	$80,000
Finished Goods inventory	$120,000

If the company allocates the underapplied overhead among Cost of Goods Sold and the appropriate inventory accounts based on the amount of overhead applied during the year in the accounts, Cost of Goods Sold after allocation will be:
A) $790,000
B) $820,000
C) $810,000
D) $780,000

Answer: C Level: Medium LO: 8

Use the following to answer questions 57-60:

The accounting records of Omar Company contained the following information for last year:

	Beginning	*Ending*
Direct materials inventory	$9,000	$7,000
Work in process inventory	$17,000	$31,000
Finished goods inventory	$10,000	$15,000
Manufacturing costs incurred		
Direct materials used	$72,000	
Overhead applied	$24,000	
Direct labor cost (10,000 hours)	$80,000	
Depreciation	$10,000	
Rent	$12,000	
Taxes	$8,000	
Cost of goods sold	$157,000*	
*		
Selling and administrative costs incurred		
Advertising	$35,000	
Rent	$20,000	
Clerical	$25,000	

*Does not include over- or underapplied overhead.

57. The amount of direct material purchased during the year was:
    A) $66,000
    B) $70,000
    C) $65,000
    D) $74,000

    Answer: B Level: Medium LO: 6

58. The total costs added to Work in Process during the year were:
    A) $206,000
    B) $162,000
    C) $176,000
    D) $182,000

    Answer: C Level: Medium LO: 6

59. If Omar Company applies overhead to jobs on the basis of direct labor hours and Job 3 took 120 hours, how much overhead should be applied to that job?
    A) $960
    B) $360
    C) $528
    D) $288

    Answer: D Level: Medium LO: 3,5

60. The cost of goods manufactured for the year was:
    A) $190,000
    B) $162,000
    C) $168,000
    D) $135,000

    Answer: B Level: Medium LO: 6

Use the following to answer questions 61-64:

At the beginning of the current year, Garber Corporation estimated that its manufacturing overhead would be $70,000 and the activity level would be 10,000 machine-hours. The level of activity at capacity is 14,000 machine-hours. The actual manufacturing overhead for the year was $63,300 and the actual level of activity was 10,100 machine-hours.

61. If the company bases its predetermined overhead rate on estimated machine-hours, then its predetermined overhead rate would have been:
    A) $6.27
    B) $7.00
    C) $5.00
    D) $6.33

    Answer: B Level: Medium LO: 3 Appendix: 3A

62. If the company bases its predetermined overhead rate on estimated machine-hours, then its overhead for the year would have been:
    A) $12,800 overapplied
    B) $12,800 underapplied
    C) $7,400 overapplied
    D) $7,400 underapplied

    Answer: C Level: Medium LO: 8 Appendix: 3A

63. If the company bases its predetermined overhead rate on machine-hours at capacity, then its predetermined overhead rate would have been:
    A) $6.33
    B) $6.27
    C) $5.00
    D) $7.00

    Answer: C Level: Medium LO: 3,9 Appendix: 3A

64. If the company bases its predetermined overhead rate on machine-hours at capacity, then the cost of unused capacity reported on the income statement would have been:
    A) $700
    B) $7,400
    C) $6,700
    D) $12,800

    Answer: D Level: Medium LO: 5,9 Appendix: 3A

Use the following to answer questions 65-67:

Acton Corporation, which applies manufacturing overhead on the basis of machine-hours, has provided the following data for its most recent year of operations.

Estimated manufacturing overhead	$139,080
Estimated machine-hours	3,800
Actual manufacturing overhead	$137,000
Actual machine-hours	3,780

The estimates of the manufacturing overhead and of machine-hours were made at the beginning of the year for the purpose of computing the company's predetermined overhead rate for the year.

65. The predetermined overhead rate is closest to:
    A) $36.60
    B) $36.41
    C) $36.24
    D) $36.05

    Answer: A Level: Easy LO: 3

66. The applied manufacturing overhead for the year is closest to:
    A) $136,269
    B) $138,348
    C) $136,987
    D) $137,630

    Answer: B Level: Easy LO: 5

67. The overhead for the year was:
    A) $732 underapplied
    B) $1,348 underapplied
    C) $732 overapplied
    D) $1,348 overapplied

    Answer: D Level: Easy LO: 8

Use the following to answer questions 68-70:

Baker Corporation applies manufacturing overhead on the basis of direct labor-hours. At the beginning of the most recent year, the company based its predetermined overhead rate on total estimated overhead of $210,600 and 6,000 estimated direct labor-hours. Actual manufacturing overhead for the year amounted to $209,000 and actual direct labor-hours were 5,980.

68. The predetermined overhead rate for the year was closest to:
    A) $34.95
    B) $34.83
    C) $34.98
    D) $35.10

    Answer: D Level: Easy LO: 3

69. The applied manufacturing overhead for the year was closest to:
    A) $208,283
    B) $209,001
    C) $209,898
    D) $209,180

    Answer: C Level: Easy LO: 5

70. The overhead for the year was:
    A) $702 underapplied
    B) $898 underapplied
    C) $702 overapplied
    D) $898 overapplied

    Answer: D Level: Easy LO: 8

Use the following to answer questions 71-73:

Caber Corporation applies manufacturing overhead on the basis of machine-hours. At the beginning of the most recent year, the company based its predetermined overhead rate on total estimated overhead of $60,600. Actual manufacturing overhead for the year amounted to $59,000 and actual machine-hours were 5,900. The company's predetermined overhead rate for the year was $10.10 per machine-hour.

71. The predetermined overhead rate was based on how many estimated machine-hours?
    A) 5,783
    B) 6,000
    C) 5,900
    D) 5,842

    Answer: B Level: Medium LO: 3

72. The applied manufacturing overhead for the year was closest to:
    A) $58,017
    B) $59,590
    C) $60,600
    D) $58,597

    Answer: B Level: Easy LO: 5

73. The overhead for the year was:
    A) $1,010 underapplied
    B) $590 overapplied
    C) $590 underapplied
    D) $1,010 overapplied

    Answer: B Level: Easy LO: 8

Use the following to answer questions 74-76:

Dapper Company had only one job in process on May 1. The job had been charged with $3,400 of direct materials, $4,640 of direct labor, and $9,200 of manufacturing overhead cost. The company assigns overhead cost to jobs using the predetermined overhead rate of $23.00 per direct labor-hour.

During May, the activity was recorded:

Raw materials (all direct materials):	
Beginning balance	$8,500
Purchased during the month	$42,000
Used in production	$48,500
Labor:	
Direct labor-hours worked during the month	2,200
Direct labor cost incurred	$25,520
Actual manufacturing overhead costs incurred	$52,800
Inventories:	
Raw materials, May 30	?
Work in process, May 30	$32,190

Work in process inventory on May 30 contains $7,540 of direct labor cost. Raw materials consist solely of items that are classified as direct materials.

74. The balance in the raw materials inventory account on May 30 was:
    A) $33,500
    B) $2,000
    C) $40,000
    D) $6,500

    Answer: B Level: Medium LO: 6

75. The cost of goods manufactured for May was:
    A) $109,670
    B) $124,620
    C) $143,300
    D) $126,820

    Answer: A Level: Hard LO: 6

76. The entry to dispose of the under- or overapplied overhead cost for the month would include a:
    A) debit of $2,200 to Manufacturing Overhead
    B) debit of $14,950 to Manufacturing Overhead
    C) credit of $14,950 to Manufacturing Overhead
    D) credit of $2,200 to Manufacturing Overhead

    Answer: D Level: Hard LO: 5,8

Use the following to answer questions 77-80:

The direct labor rate in Brent Company is $9.00 per hour, and manufacturing overhead is applied to products using a predetermined overhead rate of $6.00 per direct labor hour. During May, the company purchased $60,000 in raw materials (all direct materials) and worked 3,200 direct labor hours. The Raw Materials inventory (all direct materials) decreased by $3,000 between the beginning and end of May. The Work in Process inventory on May 1 consisted of one job which had been charged with $4,000 in direct materials and on which 300 hours of direct labor time had been worked. There was no Work in Process inventory on May 31.

77. The balance in the Work in Process inventory account on May 1 was:
    A) $0
    B) $6,700
    C) $4,500
    D) $8,500

    Answer: D Level: Medium LO: 4

78. The debit to Work in Process for the cost of direct materials used during May was:
    A) $63,000
    B) $61,000
    C) $57,000
    D) $67,000

    Answer: A Level: Medium LO: 4

79. The debit to Work in Process for direct labor cost during May was:
    A) $21,000
    B) $26,100
    C) $28,800
    D) $31,500

    Answer: C Level: Medium LO: 4

80. If overhead was underapplied by $2,500 during May, the actual overhead cost for the month must have been:
    A) $16,700
    B) $21,700
    C) $18,500
    D) $23,500

    Answer: B Level: Hard LO: 5,8

Use the following to answer questions 81-84:

Chelm Music Company manufactures violins, violas, cellos, and fiddles and uses a job-order cost system.

81. What account should Chelm debit when the workers who carve the wood for the instruments are paid?
    A) Direct Labor
    B) Work in Process
    C) Manufacturing Overhead
    D) Salaries and Wages Receivable
    E) Salaries and Wages Expense

    Answer: B Level: Easy LO: 4

82. What account should Chelm debit when the production manager is paid?
    A) Direct Labor
    B) Work in Process
    C) Manufacturing Overhead
    D) Salaries and Wages Receivable
    E) Salaries and Wages Expense

    Answer: C Level: Medium LO: 4

83. What account should Chelm debit when the president of the company is paid?
    A) Direct Labor
    B) Work in Process
    C) Manufacturing Overhead
    D) Salaries and Wages Receivable
    E) Salaries and Wages Expense

    Answer: E Level: Easy LO: 4

84. What is one of the accounts that Chelm should credit when goods are sold?
    A) Finished Goods
    B) Work in Process
    C) Cost of Goods Sold
    D) Manufacturing Overhead
    E) Cost of Goods Manufactured

    Answer: A Level: Easy LO: 4

Use the following to answer questions 85-89:

The following partially completed T-accounts summarize transactions for Western Company during the year:

Raw Material		
Beg Bal	3,000	8,000
	5,000	
	7,000	

Finished Goods		
Beg Bal	9,000	20,000
	25,000	

Work in Process		
Beg Bal	6,000	25,000
	6,500	
	9,000	
	7,000	

Wages & Salaries Payable		
	10,000	2,000 Beg Bal
		12,000

Manufacturing Overhead		
	1,500	7,000
	2,000	
	750	
	3,000	

Cost of Goods Sold		
	20,000	

85. The Cost of Goods Manufactured is:
    A) $20,000
    B) $34,000
    C) $22,500
    D) $25,000

    Answer: D Level: Medium LO: 6,7

86. The direct labor cost was:
    A) $9,000
    B) $12,000
    C) $10,000
    D) $14,000

    Answer: A Level: Hard LO: 7

87. The direct materials cost was:
    A) $8,000
    B) $6,500
    C) $9,000
    D) $6,000

    Answer: B Level: Hard LO: 7

88. The manufacturing overhead applied was:
    A) $9,000
    B) $3,000
    C) $500
    D) $7,000

    Answer: D Level: Hard LO: 5,7

89. The manufacturing overhead was:
    A) $250 overapplied
    B) $750 underapplied
    C) $250 underapplied
    D) $750 overapplied

    Answer: C Level: Medium LO: 7,8

Use the following to answer questions 90-91:

Kapanga Manufacturing Company uses a job-order costing system and started the month of October with a zero balance in its work in process and finished goods inventory accounts. During October, Kapanga worked on three jobs and incurred the following direct costs on those jobs:

	Job B18	*Job B19*	*Job C11*
Direct materials	$12,000	$25,000	$18,000
Direct labor.....	$8,000	$10,000	$5,000

Kapanga applies manufacturing overhead at a rate of 150% of direct labor cost. During October, Kapanga completed Jobs B18 and B19 and sold Job B19.

90. What is Kapanga's cost of goods manufactured for October?
    A) $ 50,000
    B) $ 55,000
    C) $ 78,000
    D) $ 82,000

    Answer: D Level: Medium LO: 5,6

91. What is Kapanga's work in process inventory balance at the end of October?
    A) $23,000
    B) $30,500
    C) $32,000
    D) $43,000

    Answer: B Level: Medium LO: 5,6

Use the following to answer questions 92-95:

Dillon Company applies manufacturing overhead to jobs using a predetermined overhead rate of 75% of direct labor cost. Any under or overapplied overhead cost is closed out to Cost of Goods Sold at the end of the month. During May, the following transactions were recorded by the company:

Raw materials (all direct materials):	
Purchased during the month	$38,000
Used in production	$35,000
Labor:	
Direct labor hours worked during the month	3,150
Direct labor cost incurred	$30,000
Manufacturing overhead cost incurred (total)	$24,500
Inventories:	
Raw materials (all direct), May 31	$8,000
Work in process, May 1	$9,000
Work in process, May 31	$12,000*

*Contains $4,400 in direct labor cost.

92. The balance on May 1 in the Raw Materials inventory account was:
    A) $11,000
    B) $5,000
    C) $7,000
    D) $9,000

    Answer: B Level: Medium LO: 6

93. The amount of direct materials cost in the May 31 Work in Process inventory account was:
    A) $7,600
    B) $2,000
    C) $6,300
    D) $4,300

    Answer: D Level: Hard LO: 6

94. The entry to dispose of the under or overapplied overhead cost for the month would include:
    A) a debit of $2,000 to the Manufacturing Overhead account
    B) a credit of $2,500 to the Manufacturing Overhead account
    C) a debit of $2,000 to Cost of Goods Sold
    D) a credit of $2,500 to Cost of Goods Sold

    Answer: C Level: Hard LO: 8

95. The Cost of Goods Manufactured for May was:
    A) $84,500
    B) $95,000
    C) $75,500
    D) $81,500

    Answer: A Level: Medium LO: 6

Use the following to answer questions 96-98:

Farber Corporation uses a job-order cost system. The information below is from the financial records of the company for last year:

Total manufacturing costs.....	$2,500,000
Cost of goods manufactured.....	$2,425,000
Predetermined overhead rate.....	80% of direct labor cost

Applied overhead was 30% of total manufacturing costs. The Work in Process inventory at January 1 was 75% of the Work in Process inventory at December 31.

96. Farber Company's total direct labor cost was:
    A) $750,000
    B) $600,000
    C) $900,000
    D) $937,500

    Answer: D Level: Hard LO: 6 Source: CMA, adapted

97. Total cost of direct material used by Farber Company was:
    A) $750,000
    B) $812,500
    C) $850,000
    D) $1,150,000

    Answer: B Level: Hard LO: 6 Source: CMA, adapted

98. The Work in Process inventory at December 31 was:
    A) $300,000
    B) $225,000
    C) $100,000
    D) $75,000

    Answer: A Level: Hard LO: 6 Source: CMA, adapted

Use the following to answer questions 99-101:

Killian Company began operations on January 1. The predetermined overhead rate was set at $6.00 per direct labor-hour. Debits to Work in Process for the year totaled $550,000. Credits to Work in Process totaled $480,000. Analysis of the Company's records indicates that direct labor cost totaled $250,000 for the year, which represents 20,000 direct labor-hours.

99. The direct materials used in production during the year totaled:
    A) $180,000
    B) $240,000
    C) $130,000
    D) $120,000

    Answer: A Level: Hard LO: 7

100. If the actual manufacturing overhead cost for the year totaled $145,000, then overhead was:
    A) overapplied by $25,000
    B) overapplied by $10,000
    C) underapplied by $25,000
    D) underapplied by $10,000

    Answer: C Level: Medium LO: 7,8

101. The Company's ending work in process inventory consisted of one job, Job 42. The job had been charged with $28,000 of direct labor cost, which consisted of 2,000 actual labor-hours. The direct materials cost in Job 42 totaled:
A) $33,000
B) $42,000
C) $17,000
D) $30,000

Answer: D Level: Hard LO: 7

Use the following to answer questions 102-103:

Echo Corporation uses a job-order costing system and applies overhead to jobs using a predetermined overhead rate. During the year the company's Finished Goods inventory account was debited for $360,000 and credited for $338,800. The ending balance in the Finished Goods inventory account was $36,600. At the end of the year, manufacturing overhead was overapplied by $15,900.

102. The balance in the Finished Goods inventory account at the beginning of the year was:
A) $15,900
B) $15,400
C) $21,200
D) $36,600

Answer: B Level: Medium LO: 7

103. If the applied manufacturing overhead was $169,300, the actual manufacturing overhead cost for the year was:
A) $168,800
B) $153,400
C) $190,000
D) $185,200

Answer: B Level: Medium LO: 7

Use the following to answer questions 104-108:

The following partially completed T-accounts summarize transactions for Farwest Company during the year:

Raw Materials		
Beg Bal	4,700	10,000
	6,900	

Finished Goods		
Beg Bal	1,900	22,900
	26,300	

Work in Process		
Beg Bal	4,600	26,300
	7,400	
	8,000	
	6,800	

Manufacturing Overhead	
2,600	6,800
3,000	
1,900	

Wages & Salaries Payable		
12,300	1,400	Beg Bal
	11,000	

Cost of Goods Sold	
22,900	

104. The Cost of Goods Manufactured was:
A) $22,900
B) $26,300
C) $6,400
D) $49,200

Answer: B Level: Medium LO: 7

105. The direct labor cost was:
A) $8,000
B) $12,300
C) $12,600
D) $11,000

Answer: A Level: Hard LO: 7

106. The direct materials cost was:
A) $8,000
B) $10,000
C) $7,400
D) $4,600

Answer: C Level: Hard LO: 7

107. The manufacturing overhead applied was:
A) $1,900
B) $6,800
C) $12,900
D) $3,000

Answer: B Level: Medium LO: 7

108. The manufacturing overhead was:
A) $1,900 underapplied
B) $700 underapplied
C) $400 overapplied
D) $3,200 overapplied

Answer: B Level: Medium LO: 7

Essay Questions

109. Aladili Company is a manufacturing firm that uses job-order costing. At the beginning of the year, the company's inventory balances were as follows:

Raw materials	$36,000
Work in process	$41,000
Finished goods	$104,000

The company applies overhead to jobs using a predetermined overhead rate based on machine-hours. At the beginning of the year, the company estimated that it would work 21,000 machine-hours and incur $210,000 in manufacturing overhead cost. The following transactions were recorded for the year:

a. Raw materials were purchased, $346,000.
b. Raw materials were requisitioned for use in production, $338,000 ($302,000 direct and $36,000 indirect).
c. The following employee costs were incurred: direct labor, $360,000; indirect labor, $68,000; and administrative salaries, $111,000.
d. Selling costs, $153,000.
e. Factory utility costs, $29,000.
f. Depreciation for the year was $102,000 of which $93,000 is related to factory operations and $9,000 is related to selling and administrative activities.
g. Manufacturing overhead was applied to jobs. The actual level of activity for the year was 19,000 machine-hours.
h. The cost of goods manufactured for the year was $870,000.
i. Sales for the year totaled $1,221,000 and the costs on the job cost sheets of the goods that were sold totaled $855,000.
j. The balance in the Manufacturing Overhead account was closed out to Cost of Goods Sold.

Required:

Prepare the appropriate journal entry for each of the items above (a. through j.). You can assume that all transactions with employees, customers, and suppliers were conducted in cash.

Level: Medium LO: 3,4,5,8

Answer:

a.	Raw Materials Inventory	346,000	
	Cash		346,000
b.	Work in Process Inventory	302,000	
	Manufacturing Overhead	36,000	
	Raw Materials Inventory		338,000
c.	Work in Process Inventory	360,000	
	Manufacturing Overhead	68,000	
	Administrative Salary Expense	111,000	
	Cash		539,000
d.	Selling Expenses	153,000	
	Cash		153,000
e.	Manufacturing Overhead	29,000	
	Cash		29,000
f.	Manufacturing Overhead	93,000	
	Depreciation Expense	9,000	
	Accumulated Depreciation		102,000
g.	Work in Process	190,000	
	Manufacturing Overhead		190,000
h.	Finished Goods	870,000	
	Work in Process		870,000
i.	Cash	1,221,000	
	Sales		1,221,000
	Cost of Goods Sold	855,000	
	Finished Goods		855,000
j.	Cost of Goods Sold	36,000	
	Manufacturing Overhead		36,000

110. Quark Spy Equipment manufactures espionage equipment. Quark uses a job-order cost system and applies overhead to jobs the basis of direct labor-hours. For the current year, Quark estimated that it would work 100,000 direct labor-hours and incur $20,000,000 of manufacturing overhead cost. The following summarized information relates to January of the current year. The raw materials purchased include both direct and indirect materials.

Raw materials purchased on account	$1,412,000
Direct materials requisitioned into production	$1,299,500
Indirect materials requisitioned into production	$98,000
Direct labor cost (7,900 hours @ $40 per hour)	$316,000
Indirect labor cost (10,200 hours @ $16 per hour)	$163,200
Depreciation on the factory building	$190,500
Depreciation on the factory equipment	$890,700
Utilities for the factory	$79,600
Cost of jobs finished	$2,494,200
Cost of jobs sold	$2,380,000
Sales (all on account)	$3,570,000

Required:

Prepare journal entries to record Quark's transactions for the month of January. Do not close out the manufacturing overhead account.

Level: Medium LO: 3,4,5

Answer:

Raw Materials	1,412,000	
Accounts Payable		1,412,000
Work in Process	1,299,500	
Manufacturing Overhead	98,000	
Raw Materials		1,397,500
Work in Process	316,000	
Manufacturing Overhead	163,200	
Salaries and Wages Payable (or Cash)		479,200
Work in Process	1,580,000	
Manufacturing Overhead		1,580,000
($20,000,000/100,000) × 7,900		
Manufacturing Overhead	1,160,800	
Accumulated Depreciation, Building		190,500
Accumulated Depreciation, Equipment		890,700
Utilities Payable (or Cash)		79,600
Finished Goods	2,494,200	
Work in Process		2,494,200
Cost of Goods Sold	2,380,000	
Finished Goods		2,380,000
Accounts Receivable	3,570,000	
Sales		3,570,000

111. Baar Company is a manufacturing firm that uses job-order costing. The company's inventory balances were as follows at the beginning and end of the year:

	Beginning Balance	*Ending Balance*
Raw materials	$26,000	$20,000
Work in process	$71,000	$53,000
Finished goods	$66,000	$81,000

The company applies overhead to jobs using a predetermined overhead rate based on machine-hours. At the beginning of the year, the company estimated that it would work 44,000 machine-hours and incur $176,000 in manufacturing overhead cost. The following transactions were recorded for the year:

- Raw materials were purchased, $459,000.
- Raw materials were requisitioned for use in production, $465,000 ($431,000 direct and $34,000 indirect).
- The following employee costs were incurred: direct labor, $296,000; indirect labor, $63,000; and administrative salaries, $157,000.
- Selling costs, $134,000.
- Factory utility costs, $14,000.
- Depreciation for the year was $119,000 of which $114,000 is related to factory operations and $5,000 is related to selling and administrative activities.
- Manufacturing overhead was applied to jobs. The actual level of activity for the year was 47,000 machine-hours.
- Sales for the year totaled $1,287,000

Required:

a. Prepare a schedule of cost of goods manufactured in good form.
b. Was the overhead under- or overapplied? By how much?
c. Prepare an income statement for the year in good form. The company closes any under- or overapplied overhead to Cost of Goods Sold.

Level: Medium LO: 3,5,6,8

Answer:

a. Schedule of cost of goods manufactured

Estimated total manufacturing overhead (a)	$176,000
Estimated total machine-hours (b)	44,000
Predetermined overhead rate (a) ÷ (b)	$ 4.00
Actual total machine-hours (a)	47,000
Predetermined overhead rate (b)	$4.00
Overhead applied (a) × (b)	$188,000
Direct materials:	
Raw materials inventory, beginning	$ 26,000
Add: purchases of raw materials	459,000
Total raw materials available	485,000
Deduct: raw materials inventory, ending	20,000
Raw materials used in production	465,000
Less: indirect materials	34,000
Direct materials	431,000
Direct labor	296,000
Manufacturing overhead applied	188,000
Total manufacturing costs	915,000
Add: Beginning work in process inventory	71,000
	986,000
Deduct: Ending work in process inventory	53,000
Cost of goods manufactured	$933,000

b. Overhead under- or overapplied

Actual manufacturing overhead cost incurred:	
Indirect materials	$ 34,000
Indirect labor	63,000
Factory utilities	14,000
Factory depreciation	114,000
Manufacturing overhead cost incurred	225,000
Manufacturing overhead applied	188,000
Underapplied overhead	$ 37,000

c. Income Statement

Beginning finished goods inventory	$ 66,000	
Cost of goods manufactured	933,000	
Goods available for sale	999,000	
Ending finished goods inventory	81,000	
Unadjusted cost of goods sold	918,000	
Add: underapplied overhead	37,000	
Adjusted cost of goods sold	$955,000	
Sales		$1,287,000
Cost of goods sold (adjusted)		955,000
Gross margin		332,000
Less selling and administrative expenses:		
Administrative salaries	$157,000	
Selling costs	134,000	
Depreciation	5,000	296,000
Net operating income		$ 36,000

112. Gonzalez, Inc. manufactures stereo speakers in two factories; one in Vandalia, Illinois and another in Modesto, California. The Vandalia factory uses DL$ for its overhead rate and the Modesto factory uses machine-hours (MHs) for its overhead rate. Information related to both plants for last year is presented below:

	Vandalia factory	*Modesto factory*
Estimated manufacturing overhead	$1,000,000	$1,600,000
Estimated amount of allocation base	(a)_____	200,000 MHs
Predetermined overhead rate	$10 per DL$	(d)_____
Actual amount of allocation base	(b)_____	190,000 MHs
Actual manufacturing overhead	$1,092,500	$1,472,500
Applied manufacturing overhead	$1,010,000	(e)_____
Under or overapplied overhead	(c)_____	(f)_____

Required:

Fill in the lettered blanks above. SHOW YOUR CALCULATIONS.

Level: Medium LO: 3,5,8

Answer:
(a) = $100,000; $1,000,000/$10
(b) = $101,000; $1,010,000/$10
(c) = $82,500 underapplied; $1,092,500 - $1,010,000
(d) = $8 per MH; $1,600,000/200,000
(e) = $1,520,000; 190,000 × $8
(f) = ($47,500) overapplied; $1,472,500 - $1,520,000

113. Hacken Company has a job-order costing system. The company applies manufacturing overhead to jobs using a predetermined overhead rate based on direct labor cost. The information below has been taken from the cost records of Hacken Company for the past year:

Direct materials used in production	$1,250
Total manufacturing costs charged to production during the year (includes direct materials, direct labor, and applied factory overhead)	$6,050
Manufacturing overhead applied	$2,800
Selling and administrative expenses	$1,000
Inventories:	
Direct materials, January 1	$130
Direct materials, December 31	$80
Work in process, January 1	$250
Work in process, December 31	$400
Finished goods, January 1	$300
Finished goods, December 31	$200

Required:

a. Compute the cost of direct materials purchased during the year.
b. Compute the predetermined overhead rate that was used during the past year.
c. Compute the Cost of Goods Manufactured for the past year.
d. Compute the Cost of Goods Sold for the past year.

Level: Hard LO: 3,6

Answer:

a.	Cost of raw materials used in production	$1,250
	Less decrease in the raw materials inventory during the year ($130 - $80 = $50)	50
	Cost of raw materials purchased during the year	$1,200
b.	Total manufacturing costs	$6,050
	Less: Direct materials used in production	1,250
	Less: Manufacturing overhead applied	2,800
	Direct labor cost incurred	$2,000

Predetermined overhead rate = Manufacturing overhead cost ÷ Direct labor cost = $2,800 ÷ $2,000 =140% of direct labor cost

c.	Total manufacturing costs	$6,050
	Add: Work in process inventory, January 1	250
		6,300
	Deduct: Work in process inventory, December 31	400
	Cost of goods manufactured	$5,900
d.	Finished goods inventory, January 1	$ 300
	Add: Cost of goods manufactured	5,900
	Cost of goods available for sale	6,200
	Deduct: Finished goods inventory, December 31	200
	Cost of goods sold	$6,000

114. The Simkins Company uses a job order costing system. The following activities took place during the month of May:

a. Raw materials purchased, $40,000.
b. Raw materials (all direct) used in production, $35,000.
c. Salaries and wages cost incurred:
   Direct labor cost, $60,000.
   Indirect labor cost, $30,000.
   Sales salaries $25,000.
d. Factory utility costs incurred, $15,000.
e. Depreciation on factory equipment, $50,000.
f. Advertising expense incurred, $80,000.
g. Manufacturing overhead is applied at the predetermined rate of 150% of direct labor cost.
h. Cost of Goods Manufactured for the month, $180,000.
i. Cost of Goods Sold for the month, $150,000.

Required:

Prepare journal entries to record the information given above. Key your entries by the letters a through i.

Level: Medium LO: 4,5,6

Answer:

a.	Raw materials inventory	40,000	
	Accounts payable		40,000
b.	Work in process	35,000	
	Raw materials inventory		35,000
c.	Work in process	60,000	
	Manufacturing overhead	30,000	
	Sales salaries expense	25,000	
	Wages and salaries payable		115,000
d.	Manufacturing overhead	15,000	
	Accounts payable		15,000
e.	Manufacturing overhead	50,000	
	Accumulated depreciation		50,000
f.	Advertising expense	80,000	
	Accounts payable		80,000
g.	Work in process	90,000	
	Manufacturing overhead		90,000
	$60,000 × 150% = $90,000		
h.	Finished goods	180,000	
	Work in process		180,000
i.	Cost of goods sold	150,000	
	Finished goods		150,000

115. The Commonwealth Company uses a job-order cost system and applies manufacturing overhead cost to jobs using a predetermined overhead rate based on the cost of materials used in production. At the beginning of the year, the following estimates were made as a basis for computing the predetermined overhead rate: manufacturing overhead cost, $186,000; direct materials cost, $155,000. The following transactions took place during the year (all purchases and services were acquired on account):

    a. Raw materials purchased, $96,000.
    b. Raw materials requisitioned for use in production (all direct materials), $88,000.
    c. Utility bills incurred in the factory, $17,000.
    d. Costs for salaries and wages incurred as follows:
       Direct labor, $174,000
       Indirect labor, $70,000
       Selling and administrative salaries, $124,000
    e. Maintenance costs incurred in the factory, $12,000.
    f. Advertising costs incurred, $98,000.
    g. Depreciation recorded for the year, $75,000 (75% relates to factory assets and the remainder relates to selling and administrative assets).
    h. Rental cost incurred on buildings, $80,000 (80% of the space is occupied by the factory, and 20% is occupied by sales and administration).
    i. Miscellaneous selling and administrative costs incurred, $12,000.
    j. Manufacturing overhead cost was applied to jobs.
    k. Cost of goods manufactured for the year, $480,000.
    l. Sales for the year (all on account) totaled $900,000. These goods cost $550,000 to manufacture

    Required:

    Prepare journal entries to record the information above. Key your entries to the letters a through l.

    Level: Medium LO: 4,5,6

Answer:

a.	Raw Materials	96,000	
	Accounts Payable		96,000
b.	Work in Process	88,000	
	Raw Materials		88,000
c.	Manufacturing Overhead	17,000	
	Accounts Payable		17,000
d.	Work in Process	174,000	
	Manufacturing Overhead	70,000	
	Salaries Expense	124,000	
	Salaries and Wages Payable		368,000
e.	Manufacturing Overhead	12,000	
	Accounts Payable		12,000
f.	Advertising Expense	98,000	
	Accounts Payable		98,000
g.	Manufacturing Overhead	56,250	
	Depreciation Expense	18,750	
	Accumulated Depreciation		75,000
h.	Manufacturing Overhead	64,000	
	Rent Expense	16,000	
	Accounts Payable		80,000
i.	Miscellaneous Expense	12,000	
	Accounts Payable		12,000
j.	Work in Process	105,600	
	Manufacturing Overhead		105,600
	((186,000/155,000) × 88,000)		
k.	Finished Goods	480,000	
	Work in Process		480,000
l.	Accounts Receivable	900,000	
	Sales		900,000
	Cost of Goods Sold	550,000	
	Finished Goods		550,000

116. The following cost data relate to the manufacturing activities of the Kanaba Company last year:

Manufacturing overhead costs:	
Property taxes	$ 1,500
Utilities, factory	2,500
Indirect labor	5,000
Depreciation, factory	12,000
Insurance, factory	3,000
Total	$24,000
Other costs incurred:	
Purchases of direct materials	$16,000
Direct labor cost	$20,000
Inventories:	
Direct materials, January 1	$4,000
Direct materials, December 31	$3,500
Work in process, January 1	$3,000
Work in process, December 31	$3,750

The company uses a predetermined overhead rate to apply manufacturing overhead cost to production. The rate last year was $5.00 per machine-hour; a total of 5,000 machine-hours were recorded for the year.

Required:

a. Compute the amount of under- or overapplied overhead cost for the year.
b. Prepare a schedule of Cost of Goods Manufactured for the year.

Level: Medium LO: 5,6,8

Answer:

a.

Actual total manufacturing overhead cost	$24,000
Manufacturing overhead applied: 5,000 × $5.00 =	25,000
Overapplied manufacturing overhead	$ (1,000)

b.

Kanaba Company
Statement of Cost of Goods Manufactured
For the year ended December 31

Direct materials:	
Direct materials inventory, January 1	$ 4,000
Add purchases of direct materials	16,000
Direct materials available for use	20,000
Deduct direct materials inventory, December 31	3,500
Direct materials used in production	16,500
Direct labor	20,000
Overhead cost applied to work in progress	25,000
Total manufacturing costs	61,500
Add work in process, January 1	3,000
	64,500
Deduct work in process, December 31	3,750
Cost of goods manufactured	$60,750

117. Testor Products uses a job-order costing system with a predetermined overhead rate based on machine-hours. The company closes out any under- or overapplied overhead to Cost of Goods Sold.

Required:

If overhead is overapplied, what adjustment does the company make to Cost of Goods Sold? Is Cost of Goods Sold increased or decreased? Why?

Level: Easy LO: 8

Answer:

If overhead is overapplied, too much overhead has been applied to inventories and they are therefore overcosted. Since these excess costs flow through to Cost of Goods Sold when finished goods are sold, it is necessary to reduce Cost of Goods Sold in order to eliminate this overstatement of costs.

Chapter 4 Systems Design: Process Costing

True/False Questions

1. When materials are purchased in a process costing system, a work in process account is debited with the cost of the materials.

   Answer: False Level: Easy LO: 1

2. Any difference in the equivalent units calculated under the weighted-average and the FIFO methods is due to the units in the ending work in process inventory.

   Answer: False Level: Easy LO: 2,6 Appendix: 4

3. The equivalent units in beginning work in process inventory plus the equivalent units for the work done during the period equals the units transferred out plus the equivalent units in ending work in process inventory.

   Answer: True Level: Hard LO: 2

4. There is no difference in the unit costs computed under the weighted-average and FIFO methods of process costing if there are no beginning work in process inventories.

   Answer: True Level: Hard LO: 4,8 Appendix: 4

5. Under the weighted-average method of process costing, costs from the prior period are averaged with those of the current period in computing unit costs.

   Answer: True Level: Medium LO: 4

6. In a process costing production report, the "Cost to be accounted for" will be the same whether the weighted-average or the FIFO method is used.

   Answer: True Level: Medium LO: 5,9 Appendix: 4

7. Under the FIFO method of product costing, equivalent units of production consider units in the beginning inventory as if they were started and completed during the current period.

   Answer: False Level: Medium LO: 6 Appendix: 4

8. The production report of a company using the FIFO cost method likely would show goods transferred from a department in two parts--one part consisting of units from the beginning inventory completed and transferred, and the other part consisting of units that were both started and completed during the month.

   Answer: True Level: Medium LO: 7 Appendix: 4

9. In computing the cost per equivalent unit on the production report, costs in the beginning work in process inventory are kept separate from current period costs when the FIFO method is used.

   Answer: True Level: Medium LO: 8 Appendix: 4

10. A major advantage of the FIFO method is that it allows managers to judge the performance of the current period independently of the performance of the prior period.

    Answer: True Level: Medium LO: 9,10 Appendix: 4

11. Under a JIT inventory system, the differences between FIFO and weighted-average costing methods are reduced.

    Answer: True Level: Easy LO: 9,10 Appendix: 4

12. When the FIFO method is used to prepare a production report, costs to the next department are accounted for in two separate blocks.

    Answer: True Level: Easy LO: 9 Appendix: 4

13. Costs are accumulated by department in a process costing system.

    Answer: True Level: Easy LO: 10

14. Operation costing is a hybrid system that employs certain aspects of both job-order and process costing.

    Answer: True Level: Easy LO: 10

15. Under job-order costing, costs are accumulated by department and are assigned equally to all units passing through the department during the period.

    Answer: False Level: Easy LO: 10

Multiple Choice Questions

16. Which of the following journal entries would be used to record direct labor costs in a company having two processing departments (Department A and Department B)?

A)	Work in Process	XXX	
	Salaries and Wages Payable		XXX
B)	Salaries and Wages Expense	XXX	
	Salaries and Wages Payable		XXX
C)	Work in Process-Department A	XXX	
	Work in Process-Department B	XXX	
	Salaries and Wages Payable		XXX
D)	Salaries and Wages Payable	XXX	
	Work in Process		XXX

Answer: C Level: Medium LO: 1

17. Which of the following journal entries would be used to record application of manufacturing overhead to work in process in a process costing system with two processing departments, department A and department B?

A)	Manufacturing Overhead	XXX	
	Work in Process–Department A		XXX
	Work in Process–Department B		XXX
B)	Work in Process–Department A	XXX	
	Work in Process–Department B	XXX	
	Manufacturing Overhead		XXX
C)	Work in Process–Department B	XXX	
	Work in Process–Department A		XXX
	Manufacturing Overhead		XXX
D)	Work in Process–Department A	XXX	
	Work in Process–Department B		XXX
	Manufacturing Overhead		XXX

Answer: B Level: Easy LO: 1

18. Costs in an operation costing system are accumulated by:
A) department.
B) by individual job.
C) by both job and departments.
D) by neither job nor department.

Answer: C Level: Easy LO: 1

19. A process costing system was used for a department that began operations in January. Approximately the same number of physical units, at the same degree of completion were in work in process at the end of both January and February. Monthly conversion costs are allocated between ending work in process and units completed. Compared to the FIFO method, would the weighted-average method use the same or a greater number of equivalent units to calculate the monthly allocations?

	Equivalent units for weighted average compared to FIFO	
	January	*February*
A)	Same	Same
B)	Greater number	Greater number
C)	Greater number	Same
D)	Same	Greater number

Answer: D Level: Hard LO: 2,6 Source: CPA, adapted Appendix: 4

20. The FIFO method provides a major advantage over the weighted-average method in that:
    A) the calculation of equivalent units is less complex under the FIFO method.
    B) the FIFO method treats units in the beginning inventory as if they were started and completed during the current period.
    C) the FIFO method provides measurements of work done during the current period.
    D) the weighted-average method ignores units in the beginning and ending work in process inventories.

    Answer: C Level: Medium LO: 2,6 Appendix: 4

21. The weighted-average method of process costing differs from the FIFO method of process costing in that the weighted-average method:
    A) can be used under any cost flow assumption.
    B) does not require the use of predetermined overhead rates.
    C) keeps costs in the beginning inventory separate from current period costs.
    D) does not consider the degree of completion of units in the beginning work in process inventory when computing equivalent units of production.

    Answer: D Level: Medium LO: 2,6 Appendix: 4

22. Which of the following statements about process costing system is incorrect?
    A) In a process costing system, each processing department has a work in process account.
    B) In a process costing system, equivalent units are separately computed for materials and for conversion costs.
    C) In a process costing system, overhead can be under- or overapplied just as in job-order costing.
    D) In a process costing system, materials costs are traced to units of products.

    Answer: D Level: Hard LO: 2,10

23. When the weighted-average method of process costing is used, a department's equivalent units are computed by:
    A) subtracting the equivalent units in beginning inventory from the equivalent units in ending inventory.
    B) subtracting the equivalent units in beginning inventory from the equivalent units for work performed during the period.
    C) adding the units transferred out to the equivalent units in ending inventory.
    D) subtracting the equivalent units in beginning inventory from the sum of the units transferred out and the equivalent units in ending inventory.

    Answer: C Level: Medium LO: 2

24. Equivalent units for a process costing system using the FIFO method would be equal to:
    A) units completed during the period plus equivalent units in the ending work in process inventory.
    B) units started and completed during the period plus equivalent units in the ending work in process inventory.
    C) units completed during the period and transferred out.
    D) units started and completed during the period plus equivalent units in the ending work in process inventory plus work needed to complete units in the beginning work in process inventory.

    Answer: D Level: Medium LO: 6 Appendix: 4

25. Which of the following types of entities would be most likely to use a process costing system?
A) a shipbuilder
B) a furniture manufacturer
C) a law firm
D) a utility producing natural gas

Answer: D Level: Easy LO: 10

26. Darvin Company uses the weighted-average method in its process costing system. The first processing department, the Welding Department, started the month with 20,000 units in its beginning work in process inventory that were 10% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $7,000. An additional 63,000 units were started into production during the month. There were 10,000 units in the ending work in process inventory of the Welding Department that were 10% complete with respect to conversion costs. A total of $237,600 in conversion costs were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for the month? (Round off to three decimal places.)
A) $3.255
B) $3.771
C) $3.500
D) $3.305

Answer: D Level: Medium LO: 2,3,4

27. Dedra Company uses the weighted-average method in its process costing system. The first processing department, the Welding Department, started the month with 10,000 units in its beginning work in process inventory that were 50% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $37,500. An additional 98,000 units were started into production during the month. There were 17,000 units in the ending work in process inventory of the Welding Department that were 80% complete with respect to conversion costs. A total of $727,080 in conversion costs were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for the month? (Round off to three decimal places.)
A) $6.322
B) $7.419
C) $7.500
D) $7.310

Answer: D Level: Medium LO: 2,3,4

28. Luster Company uses the weighted-average method in its process costing system. Operating data for the first processing department for the month of June appear below:

	Units	*Percentage complete*
Beginning work in process inventory	13,000	40%
Started into production during June	98,000	
Ending work in process inventory	11,000	30%

According to the company's records, the conversion cost in beginning work in process inventory was $39,364 at the beginning of June. Additional conversion costs of $721,035 were incurred in the department during the month.

What was the cost per equivalent unit for conversion costs for the month? (Round off to three decimal places.)

A) $6.615
B) $7.358
C) $7.361
D) $7.570

Answer: C Level: Medium LO: 2,3,4

29. Lumdal Company uses the weighted-average method in its process costing system. Operating data for the first processing department for the month of June appear below:

	Units	*Percentage complete*
Beginning work in process inventory	10,000	90%
Started into production during June	75,000	
Ending work in process inventory	17,000	40%

According to the company's records, the conversion cost in beginning work in process inventory was $77,490 at the beginning of June. Additional conversion costs of $552,062 were incurred in the department during the month.

What was the cost per equivalent unit for conversion costs for the month? (Round off to three decimal places.)

A) $8.610
B) $7.361
C) $6.001
D) $8.416

Answer: D Level: Medium LO: 2,3,4

30. Boml Company uses the weighted-average method in its process costing system. The Assembly Department started the month with 4,000 units in its beginning work in process inventory that were 20% complete with respect to conversion costs. An additional 62,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. There were 14,000 units in the ending work in process inventory of the Assembly Department that were 30% complete with respect to conversion costs.

    What were the equivalent units for conversion costs in the Assembly Department for the month?
    A) 56,200
    B) 55,400
    C) 72,000
    D) 52,000

    Answer: A Level: Medium LO: 2,3

31. Bricker Company uses the weighted-average method in its process costing system. The Assembly Department started the month with 5,000 units in its beginning work in process inventory that were 60% complete with respect to conversion costs. An additional 81,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. There were 18,000 units in the ending work in process inventory of the Assembly Department that were 80% complete with respect to conversion costs.

    What were the equivalent units for conversion costs in the Assembly Department for the month?
    A) 79,400
    B) 82,400
    C) 94,000
    D) 68,000

    Answer: B Level: Medium LO: 2,3

32. Jinker Company uses the weighted-average method in its process costing system. Operating data for the Painting Department for the month of April appear below:

	Units	*Percentage complete*
Beginning work in process inventory	6,700	50%
Transferred in from the prior department during April	57,800	
Ending work in process inventory	7,600	60%

What were the equivalent units for conversion costs in the Painting Department for April?
A) 56,900
B) 61,460
C) 62,360
D) 58,700

Answer: B Level: Medium LO: 2,3

33. Jumil Company uses the weighted-average method in its process costing system. Operating data for the Painting Department for the month of April appear below:

	Units	*Percentage complete*
Beginning work in process inventory	4,700	40%
Transferred in from the prior department during April	56,600	
Ending work in process inventory	6,300	60%

What were the equivalent units for conversion costs in the Painting Department for April?
A) 58,200
B) 60,380
C) 58,780
D) 55,000

Answer: C Level: Medium LO: 2,3

34. Hafner Company uses the weighted-average method in its process costing system. The first processing department, the Welding Department, started the month with 13,000 units in its beginning work in process inventory that were 80% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $23,920. An additional 66,000 units were started into production during the month and 68,000 units were completed in the Welding Department and transferred to the next processing department. There were 11,000 units in the ending work in process inventory of the Welding Department that were 30% complete with respect to conversion costs. A total of $127,890 in conversion costs were incurred in the department during the month.

    What would be the cost per equivalent unit for conversion costs for the month? (Round off to three decimal places.)
    A) $2.129
    B) $2.300
    C) $1.661
    D) $1.938

    Answer: A Level: Medium LO: 2,4

35. Hall Company uses the weighted-average method in its process costing system. The first processing department, the Welding Department, started the month with 18,000 units in its beginning work in process inventory that were 60% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $64,800. An additional 84,000 units were started into production during the month and 78,000 units were completed in the Welding Department and transferred to the next processing department. There were 24,000 units in the ending work in process inventory of the Welding Department that were 30% complete with respect to conversion costs. A total of $431,520 in conversion costs were incurred in the department during the month.

    What would be the cost per equivalent unit for conversion costs for the month? (Round off to three decimal places.)
    A) $5.825
    B) $3.996
    C) $5.137
    D) $6.000

    Answer: A Level: Medium LO: 2,4

36. Pajona Company uses the weighted-average method in its process costing system. The Molding Department is the second department in its production process. The data below summarize the department's operations in January.

	Units	*Percentage complete*
Beginning work in process inventory	7,400	60%
Transferred in from the prior department during January	66,000	
Completed and transferred to the next department during January	69,700	
Ending work in process inventory	3,700	70%

The accounting records indicate that the conversion cost that had been assigned to beginning work in process inventory was $31,302 and a total of $497,341 in conversion costs were incurred in the department during January.

What was the cost per equivalent unit for conversion costs for January in the Molding Department? (Round off to three decimal places.)
A) $7.535
B) $7.050
C) $7.313
D) $7.135

Answer: C Level: Medium LO: 2,4

37. Pampin Company uses the weighted-average method in its process costing system. The Molding Department is the second department in its production process. The data below summarize the department's operations in January.

	Units	*Percentage complete*
Beginning work in process inventory	9,600	50%
Transferred in from the prior department during January	43,000	
Completed and transferred to the next department during January	45,500	
Ending work in process inventory	7,100	10%

The accounting records indicate that the conversion cost that had been assigned to beginning work in process inventory was $17,328 and a total of $161,085 in conversion costs were incurred in the department during January.

What was the cost per equivalent unit for conversion costs for January in the Molding Department? (Round off to three decimal places.)
A) $3.610
B) $3.746
C) $3.215
D) $3.861

Answer: D Level: Medium LO: 2,4

38. Fabre Corporation uses the weighted-average method in its process costing system. The Assembly Department started the month with 3,000 units in its beginning work in process inventory that were 70% complete with respect to conversion costs. An additional 90,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. During the month 75,000 units were completed in the Assembly Department and transferred to the next processing department. There were 18,000 units in the ending work in process inventory of the Assembly Department that were 50% complete with respect to conversion costs.

What were the equivalent units for conversion costs in the Assembly Department for the month?
A) 105,000
B) 75,000
C) 84,000
D) 81,900

Answer: C Level: Easy LO: 2

39. Faivre Corporation uses the weighted-average method in its process costing system. The Assembly Department started the month with 13,000 units in its beginning work in process inventory that were 20% complete with respect to conversion costs. An additional 55,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. During the month 67,000 units were completed in the Assembly Department and transferred to the next processing department. There were 1,000 units in the ending work in process inventory of the Assembly Department that were 50% complete with respect to conversion costs.

What were the equivalent units for conversion costs in the Assembly Department for the month?
A) 43,000
B) 64,900
C) 67,000
D) 67,500

Answer: D Level: Easy LO: 2

40. Nabeth Corporation uses the weighted-average method in its process costing system. Operating data for the Lubricating Department for the month of October appear below:

	Units	*Percentage complete*
Beginning work in process inventory	7,700	80%
Transferred in from the prior department during October	48,800	
Completed and transferred to the next department during October	55,400	
Ending work in process inventory	1,100	90%

What were the equivalent units for conversion costs in the Lubricating Department for October?
A) 56,390
B) 42,200
C) 55,400
D) 49,790

Answer: A Level: Easy LO: 2

41. Naleer Corporation uses the weighted-average method in its process costing system. Operating data for the Lubricating Department for the month of October appear below:

	Units	*Percentage complete*
Beginning work in process inventory	3,400	30%
Transferred in from the prior department during October	49,500	
Completed and transferred to the next department during October	48,800	
Ending work in process inventory	4,100	90%

What were the equivalent units for conversion costs in the Lubricating Department for October?
A) 50,200
B) 48,800
C) 52,490
D) 53,190

Answer: C Level: Easy LO: 2

42. Sadanand Corporation uses the weighted-average method in its process costing system. The Fitting Department is the second department in its production process. The data below summarize the department's operations in March.

	Units	*Percentage complete*
Beginning work in process inventory	1,100	40%
Transferred in from the prior department during March	46,000	
Ending work in process inventory	4,600	30%

The Fitting Department's production report indicates that the cost per equivalent unit for conversion cost for March was $9.24.

How much conversion cost was assigned to the units transferred out of the Fitting Department during March?
A) $388,634.40
B) $425,040.00
C) $435,204.00
D) $392,700.00

Answer: D Level: Medium LO: 3,5

43. Sadron Corporation uses the weighted-average method in its process costing system. The Fitting Department is the second department in its production process. The data below summarize the department's operations in March.

	Units	*Percentage complete*
Beginning work in process inventory	6,200	20%
Transferred in from the prior department during March	45,000	
Ending work in process inventory	3,200	60%

The Fitting Department's production report indicates that the cost per equivalent unit for conversion cost for March was $7.42.

How much conversion cost was assigned to the units transferred out of the Fitting Department during March?
A) $356,160.00
B) $379,904.00
C) $333,900.00
D) $346,959.20

Answer: A Level: Medium LO: 3,5

44. The Assembly Department started the month with 59,000 units in its beginning work in process inventory. An additional 367,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. There were 35,000 units in the ending work in process inventory of the Assembly Department.

How many units were transferred to the next processing department during the month?
A) 391,000
B) 426,000
C) 343,000
D) 461,000

Answer: A Level: Easy LO: 3

45. The Assembly Department started the month with 78,000 units in its beginning work in process inventory. An additional 254,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. There were 21,000 units in the ending work in process inventory of the Assembly Department.

    How many units were transferred to the next processing department during the month?
    A) 332,000
    B) 311,000
    C) 197,000
    D) 353,000

    Answer: B Level: Easy LO: 3

46. Brooks Company uses the weighted-average method in its process costing system. The beginning work in process inventory in a particular department consisted of 12,000 units, 100% complete with respect to materials cost and 40% complete with respect to conversion costs. The total cost in the beginning work in process inventory was $25,000. During the month, 50,000 units were completed and transferred out of the department. The costs per equivalent unit were computed to be $1.50 for materials and $3.20 for conversion costs. The total cost of the units completed and transferred out of the department was:
    A) $235,000.
    B) $226,640.
    C) $210,000.
    D) $201,640.

    Answer: A Level: Medium LO: 5

47. Rameau Corporation uses the weighted-average method in its process costing system. The Molding Department is the second department in its production process. The data below summarize the department's operations in January.

	Units	*Percentage complete*
Beginning work in process inventory	5,600	60%
Transferred in from the prior department during January	47,000	
Completed and transferred to the next department during January	50,300	
Ending work in process inventory	2,300	40%

The Molding Department's production report indicates that the cost per equivalent unit for conversion cost for January was $5.29.

How much conversion cost was assigned to the ending work in process inventory in the Molding Department for January?
A) $7,300.20
B) $12,167.00
C) $11,849.60
D) $4,866.80

Answer: D Level: Easy LO: 5

48. Ramos Corporation uses the weighted-average method in its process costing system. The Molding Department is the second department in its production process. The data below summarize the department's operations in January.

	Units	*Percentage complete*
Beginning work in process inventory	2,800	40%
Transferred in from the prior department during January	45,000	
Completed and transferred to the next department during January	46,700	
Ending work in process inventory	1,100	20%

The Molding Department's production report indicates that the cost per equivalent unit for conversion cost for January was $1.12.

How much conversion cost was assigned to the ending work in process inventory in the Molding Department for January?
A) $985.60
B) $1,881.60
C) $1,232.00
D) $246.40

Answer: D Level: Easy LO: 5

49. Ebart Company uses the FIFO method in its process costing system. The first processing department, the Welding Department, started the month with 14,000 units in its beginning work in process inventory that were 70% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $20,580. An additional 53,000 units were started into production during the month. There were 17,000 units in the ending work in process inventory of the Welding Department that were 20% complete with respect to conversion costs. A total of $80,660 in conversion costs were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for the month on the department's production report? (Round off to three decimal places.)
A) $1.522
B) $2.100
C) $1.850
D) $1.511

Answer: C Level: Medium LO: 6,7,8 Appendix: 4

50. Eden Company uses the FIFO method in its process costing system. The first processing department, the Welding Department, started the month with 10,000 units in its beginning work in process inventory that were 50% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $35,500. An additional 76,000 units were started into production during the month. There were 10,000 units in the ending work in process inventory of the Welding Department that were 80% complete with respect to conversion costs. A total of $541,150 in conversion costs were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for the month on the department's production report? (Round off to three decimal places.)
A) $6.850
B) $7.120
C) $6.705
D) $7.100

Answer: A Level: Medium LO: 6,7,8 Appendix: 4

51. Maenhout Corporation uses the FIFO method in its process costing system. Operating data for the Casting Department for the month of September appear below:

	Units	*Percentage complete*
Beginning work in process inventory	21,000	60%
Transferred in from the prior department during September	64,000	
Ending work in process inventory	22,000	70%

According to the company's records, the conversion cost in beginning work in process inventory was $31,500 at the beginning of September. Additional conversion costs of $172,396 were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for September on the Casting Department's production report? (Round off to three decimal places.)
A) $2.399
B) $2.694
C) $2.500
D) $2.620

Answer: D Level: Medium LO: 6,7,8 Appendix: 4

52. Maher Corporation uses the FIFO method in its process costing system. Operating data for the Casting Department for the month of September appear below:

	Units	*Percentage complete*
Beginning work in process inventory	14,000	10%
Transferred in from the prior department during September	97,000	
Ending work in process inventory	22,000	70%

According to the company's records, the conversion cost in beginning work in process inventory was $8,960 at the beginning of September. Additional conversion costs of $671,560 were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for September on the Casting Department's production report? (Round off to three decimal places.)
A) $6.520
B) $6.923
C) $6.400
D) $6.131

Answer: A Level: Medium LO: 6,7,8 Appendix: 4

53. Camel Company uses the FIFO method in its process costing system. The Assembly Department started the month with 5,000 units in its beginning work in process inventory that were 80% complete with respect to conversion costs. An additional 62,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. There were 2,000 units in the ending work in process inventory of the Assembly Department that were 20% complete with respect to conversion costs.

What were the equivalent units for conversion costs in the Assembly Department for the month?
A) 65,400
B) 65,000
C) 59,000
D) 61,400

Answer: D Level: Medium LO: 6,7 Appendix: 4

54. Cawper Company uses the FIFO method in its process costing system. The Assembly Department started the month with 10,000 units in its beginning work in process inventory that were 10% complete with respect to conversion costs. An additional 55,000 units were transferred in from the prior department during the month to begin processing in the Assembly Department. There were 19,000 units in the ending work in process inventory of the Assembly Department that were 20% complete with respect to conversion costs.

    What were the equivalent units for conversion costs in the Assembly Department for the month?
    A) 49,800
    B) 48,800
    C) 64,000
    D) 46,000

    Answer: B Level: Medium LO: 6,7 Appendix: 4

55. Kapstein Corporation uses the FIFO method in its process costing system. Operating data for the Enameling Department for the month of May appear below:

	Units	*Percentage complete*
Beginning work in process inventory	6,400	10%
Transferred in from the prior department during May	51,200	
Ending work in process inventory	3,800	40%

    What were the equivalent units for conversion costs in the Enameling Department for May?
    A) 53,800
    B) 48,600
    C) 55,320
    D) 54,680

    Answer: D Level: Medium LO: 6,7 Appendix: 4

56. Kalra Corporation uses the FIFO method in its process costing system. Operating data for the Enameling Department for the month of May appear below:

	Units	*Percentage complete*
Beginning work in process inventory	7,200	20%
Transferred in from the prior department during May	70,100	
Ending work in process inventory	2,600	80%

What were the equivalent units for conversion costs in the Enameling Department for May?
A) 65,500
B) 76,780
C) 74,700
D) 75,340

Answer: D Level: Medium LO: 6,7 Appendix: 4

57. Overhill Company uses the FIFO method in its process costing system. In the Cutting Department in June, units were 80% complete with respect to conversion in the beginning work in process inventory and 25% complete with respect to conversion in the ending work in process inventory. Other data for the department for June follow:

	Units	*Conversion Cost*
Beginning work in process inventory	20,000	$40,000
Units started into production, and costs incurred during the month	150,000	$186,000
Units completed and transferred out	130,000	

The cost per equivalent unit for conversion cost is closest to:
A) $1.48
B) $1.50
C) $1.16
D) $1.82

Answer: B Level: Medium LO: 6,8 Appendix: 4

58. Inacio Corporation uses the FIFO method in its process costing system. The first processing department, the Forming Department, started the month with 22,000 units in its beginning work in process inventory that were 70% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $38,500. An additional 71,000 units were started into production during the month and 72,000 units were completed and transferred to the next processing department. There were 21,000 units in the ending work in process inventory of the Forming Department that were 40% complete with respect to conversion costs. A total of $148,850 in conversion costs were incurred in the department during the month.

    What would be the cost per equivalent unit for conversion costs for the month on the Forming Department's production report? (Round off to three decimal places.)
    A) $2.500
    B) $2.015
    C) $2.096
    D) $2.290

    Answer: D Level: Medium LO: 6,8 Appendix: 4

59. Iyer Corporation uses the FIFO method in its process costing system. The first processing department, the Forming Department, started the month with 14,000 units in its beginning work in process inventory that were 20% complete with respect to conversion costs. The conversion cost in this beginning work in process inventory was $3,360. An additional 92,000 units were started into production during the month and 95,000 units were completed and transferred to the next processing department. There were 11,000 units in the ending work in process inventory of the Forming Department that were 10% complete with respect to conversion costs. A total of $92,367 in conversion costs were incurred in the department during the month.

    What would be the cost per equivalent unit for conversion costs for the month on the Forming Department's production report? (Round off to three decimal places.)
    A) $1.004
    B) $0.990
    C) $1.200
    D) $0.903

    Answer: B Level: Medium LO: 6,8 Appendix: 4

60. Qimper Corporation uses the FIFO method in its process costing system. Operating data for the Cutting Department for the month of March appear below:

	Units	*Percentage complete*
Beginning work in process inventory	6,600	70%
Transferred in from the prior department during March	54,000	
Completed and transferred to the next department during March	58,600	
Ending work in process inventory	2,000	40%

According to the company's records, the conversion cost in beginning work in process inventory was $38,069 at the beginning of March. Additional conversion costs of $444,047 were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for March on the Cutting Department's production report? (Round off to three decimal places.)
A) $7.956
B) $8.223
C) $8.106
D) $8.240

Answer: C Level: Medium LO: 6,8 Appendix: 4

61. Quis Corporation uses the FIFO method in its process costing system. Operating data for the Cutting Department for the month of March appear below:

	Units	*Percentage complete*
Beginning work in process inventory	9,600	70%
Transferred in from the prior department during March	47,000	
Completed and transferred to the next department during March	49,600	
Ending work in process inventory	7,000	90%

According to the company's records, the conversion cost in beginning work in process inventory was $26,880 at the beginning of March. Additional conversion costs of $190,130 were incurred in the department during the month.

What would be the cost per equivalent unit for conversion costs for March on the Cutting Department's production report? (Round off to three decimal places.)
A) $3.866
B) $3.834
C) $4.045
D) $4.000

Answer: A Level: Medium LO: 6,8 Appendix: 4

62. Williams Company uses the FIFO method in its process costing system. The beginning work in process inventory in a particular department consisted of 10,000 units, 100% complete with respect to materials and 60% with respect to conversion costs. The total cost in the beginning work in process inventory was $48,200. During the month, 25,000 units were transferred out of the department. The costs per equivalent unit were computed to be $3.10 for materials and $4.50 for conversion costs. The total cost of the units completed and transferred out of the department was:
A) $190,000
B) $189,200
C) $180,200
D) $132,000

Answer: C Level: Hard LO: 6,9 Appendix: 4

63. Walden Company has a process costing system and uses the FIFO method. All materials are introduced at the beginning of the process in Department One. The following information is available for the month of January for Department One:

	Units
Work in process, January 1 (conversion 40% complete)	500
Started in January	2,000
Transferred to Department Two during January	2,100
Work in process, January 31 (conversion 25% complete)	400

What are the equivalent units for the month of January?

	Materials	*Conversion Cost*
A)	2,500	2,200
B)	2,500	1,900
C)	2,000	2,200
D)	2,000	2,000

Answer: D Level: Medium LO: 6 Source: CPA, adapted Appendix: 4

64. Mann Company uses the FIFO method in its process costing system. Department A is the first stage of the company's production process. The following information is available for conversion costs for the month of April in Department A:

	Units
Work in process, beginning (60% complete)	20,000
Started in April	340,000
Completed in April and transferred to Department B	320,000
Work in process, ending (40% complete)	40,000

The equivalent units for conversion costs are:
A) 320,000
B) 324,000
C) 336,000
D) 360,000

Answer: B Level: Easy LO: 6 Source: CPA, adapted Appendix: 4

65. Laurie Company uses the FIFO method in its process costing system. Department A is the first stage of Laurie Company's production process. The following information is available for conversion costs for the month of May for Department A:

	Units
Work in process, beginning (conversion 25% complete).....	8,000
Started in May	40,000
Completed in May and transferred to Department B	38,000
Work in process, ending (conversion 60% complete).....	10,000

The equivalent units of production for conversion costs for the month are:
A) 42,000 units
B) 38,000 units
C) 44,000 units
D) 36,000 units

Answer: A Level: Medium LO: 6 Appendix: 4

66. Richardson Company uses the FIFO method in its process costing system. During June, 40,000 units were completed in Department M. Of this total, 5,000 were in the beginning work in process and the remainder were started and completed during the month. Materials are added at the beginning of the process. A total of 10,000 units were in work in process at June 30; these units were 80% complete with respect to conversion costs. The work in process at June 1 was 40% complete with respect to conversion costs. The equivalent units for conversion costs were:
A) 39,000 units
B) 45,000 units
C) 46,000 units
D) 48,000 units

Answer: C Level: Medium LO: 6 Appendix: 4

67. Gabel Corporation uses the FIFO method in its process costing system. The Grinding Department started the month with 10,000 units in its beginning work in process inventory that were 70% complete with respect to conversion costs. An additional 85,000 units were transferred in from the prior department during the month to begin processing in the Grinding Department. During the month 81,000 units were completed in the Grinding Department and transferred to the next processing department. There were 14,000 units in the ending work in process inventory of the Grinding Department that were 90% complete with respect to conversion costs.

    What were the equivalent units for conversion costs in the Grinding Department for the month?
    A) 86,600
    B) 93,600
    C) 81,000
    D) 89,000

    Answer: A Level: Medium LO: 6 Appendix: 4

68. Gabriel Corporation uses the FIFO method in its process costing system. The Grinding Department started the month with 15,000 units in its beginning work in process inventory that were 70% complete with respect to conversion costs. An additional 58,000 units were transferred in from the prior department during the month to begin processing in the Grinding Department. During the month 64,000 units were completed in the Grinding Department and transferred to the next processing department. There were 9,000 units in the ending work in process inventory of the Grinding Department that were 90% complete with respect to conversion costs.

    What were the equivalent units for conversion costs in the Grinding Department for the month?

    A) 64,000
    B) 72,100
    C) 61,600
    D) 52,000

    Answer: C Level: Medium LO: 6 Appendix: 4

69. Osman Company uses the FIFO method in its process costing system. Operating data for the Brazing Department for the month of November appear below:

	Units	*Percentage complete*
Beginning work in process inventory	7,600	30%
Transferred in from the prior department during November	52,700	
Completed and transferred to the next department during November	54,000	
Ending work in process inventory	6,300	80%

What were the equivalent units for conversion costs in the Brazing Department for November?
A) 59,040
B) 54,000
C) 56,760
D) 51,400

Answer: C Level: Medium LO: 6 Appendix: 4

70. Oreilley Company uses the FIFO method in its process costing system. Operating data for the Brazing Department for the month of November appear below:

	Units	*Percentage complete*
Beginning work in process inventory	5,300	30%
Transferred in from the prior department during November	30,000	
Completed and transferred to the next department during November	32,500	
Ending work in process inventory	2,800	70%

What were the equivalent units for conversion costs in the Brazing Department for November?
A) 34,460
B) 32,500
C) 27,500
D) 32,870

Answer: D Level: Medium LO: 6 Appendix: 4

71. Steven Company uses the FIFO method in its process costing system. Department A's beginning work in process inventory consisted of 15,000 units, 100% complete with respect to materials and 40% complete with respect to conversion costs. The total dollar value of this inventory was $31,000. A total of 40,000 units were transferred out during the month. The costs per equivalent unit were computed to be $1.30 for materials and $2.20 for conversion costs. The cost of the units completed and transferred out was:
A) $140,000
B) $138,300
C) $131,700
D) $118,500

Answer: B Level: Medium LO: 9 Appendix: 4

72. Marlow Company uses the FIFO method in its process costing system. Department A's beginning work in process inventory consisted of 12,000 units, 100% complete with respect to materials cost and 60% complete with respect to conversion costs. The total cost in the beginning work in process inventory was $56,400. A total of 25,000 units were transferred out during the month. The cost per equivalent unit was computed to be $3.40 for materials and $4.70 for conversion costs. The total cost of the units completed and transferred out was:
A) $195,540
B) $146,100
C) $202,500
D) $184,260

Answer: D Level: Medium LO: 9 Appendix: 4

73. Tanner Corporation uses the FIFO method in its process costing system. Operating data for the Curing Department for the month of March appear below:

	Units	*Percentage complete*
Beginning work in process inventory	8,200	80%
Transferred in from the prior department during March	52,000	
Completed and transferred to the next department during March	54,200	
Ending work in process inventory	6,000	50%

According to the company's records, the conversion cost in beginning work in process inventory was $7,872 at the beginning of March. The cost per equivalent unit for conversion costs for March was $1.10.

How much conversion cost would be assigned to the units completed and transferred out of the department during March?
A) $52,404
B) $59,620
C) $60,276
D) $57,200

Answer: C Level: Medium LO: 9 Appendix: 4

74. Tanguy Corporation uses the FIFO method in its process costing system. Operating data for the Curing Department for the month of March appear below:

	Units	*Percentage complete*
Beginning work in process inventory	2,500	70%
Transferred in from the prior department during March	44,000	
Completed and transferred to the next department during March	38,500	
Ending work in process inventory	8,000	10%

According to the company's records, the conversion cost in beginning work in process inventory was $7,350 at the beginning of March. The cost per equivalent unit for conversion costs for March was $4.10.

How much conversion cost would be assigned to the units completed and transferred out of the department during March?
A) $150,675
B) $180,400
C) $158,025
D) $157,850

Answer: C Level: Medium LO: 9 Appendix: 4

Use the following to answer questions 75-80:

Annenbaum Corporation uses the weighted-average method in its process costing system. This month, the beginning inventory in the first processing department consisted of 400 units. The costs and percentage completion of these units in beginning inventory were:

	Cost	*Percent Complete*
Materials costs.....	$5,700	65%
Conversion costs	$6,800	45%

A total of 6,500 units were started and 5,900 units were transferred to the second processing department during the month. The following costs were incurred in the first processing department during the month:

Materials costs.....	$125,500
Conversion costs	$207,000

The ending inventory was 50% complete with respect to materials and 35% complete with respect to conversion costs.

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

75. What are the equivalent units for conversion costs for the month in the first processing department?
    A) 6,250
    B) 5,900
    C) 350
    D) 6,900

    Answer: A Level: Medium LO: 2,3

76. The cost per equivalent unit for materials for the month in the first processing department is closest to:
    A) $19.01
    B) $19.61
    C) $20.50
    D) $18.19

    Answer: C Level: Medium LO: 4

77. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $30.99
B) $35.92
C) $33.12
D) $34.21

Answer: D Level: Medium LO: 4

78. The cost per equivalent whole unit for the month in the first processing department is closest to:
A) $58.47
B) $50.00
C) $57.99
D) $54.71

Answer: D Level: Medium LO: 4

79. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $332,500
B) $345,000
C) $322,777
D) $377,485

Answer: C Level: Medium LO: 5

80. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
A) $19,148
B) $22,223
C) $54,708
D) $27,354

Answer: B Level: Medium LO: 5

Use the following to answer questions 81-87:

Bistrol Corporation uses the weighted-average method in its process costing system. This month, the beginning inventory in the first processing department consisted of 800 units. The costs and percentage completion of these units in beginning inventory were:

	Cost	*Percent Complete*
Materials costs.....	$15,700	75%
Conversion costs	$7,700	20%

A total of 8,400 units were started and 7,500 units were transferred to the second processing department during the month. The following costs were incurred in the first processing department during the month:

Materials costs.....	$186,300
Conversion costs	$329,800

The ending inventory was 70% complete with respect to materials and 60% complete with respect to conversion costs.

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

81. How many units are in ending work in process inventory in the first processing department at the end of the month?
    A) 7,600
    B) 900
    C) 1,700
    D) 900

    Answer: C Level: Easy LO: 3

82. What are the equivalent units for conversion costs for the month in the first processing department?
    A) 9,200
    B) 8,520
    C) 7,500
    D) 1,020

    Answer: B Level: Medium LO: 2

83. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $21.44
B) $21.96
C) $20.25
D) $23.25

Answer: D Level: Medium LO: 4

84. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $41.59
B) $38.71
C) $39.61
D) $36.68

Answer: C Level: Medium LO: 4

85. The cost per equivalent whole unit for the month in the first processing department is closest to:
A) $71.93
B) $62.86
C) $58.64
D) $66.63

Answer: B Level: Medium LO: 4

86. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $516,100
B) $471,435
C) $539,500
D) $578,294

Answer: B Level: Medium LO: 5

87. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
    A) $68,067
    B) $64,115
    C) $74,801
    D) $106,859

    Answer: A Level: Medium LO: 5

Use the following to answer questions 88-91:

Carpenter Corporation uses the weighted-average method in its process costing system. This month, the beginning inventory in the first processing department consisted of 600 units. The costs and percentage completion of these units in beginning inventory were:

	Cost	*Percent Complete*
Materials costs.....	$5,200	60%
Conversion costs	$8,500	55%

A total of 7,800 units were started and 7,100 units were transferred to the second processing department during the month. The following costs were incurred in the first processing department during the month:

Materials costs.....	$95,000
Conversion costs	$169,200

The ending inventory was 85% complete with respect to materials and 70% complete with respect to conversion costs.

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

88. How many units are in ending work in process inventory in the first processing department at the end of the month?
    A) 1,300
    B) 900
    C) 7,200
    D) 700

    Answer: A Level: Easy LO: 3

89. What are the equivalent units for conversion costs for the month in the first processing department?
A) 910
B) 8,010
C) 7,100
D) 8,400

Answer: B Level: Medium LO: 2

90. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $11.31
B) $12.21
C) $11.58
D) $11.93

Answer: B Level: Medium LO: 4

91. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $264,200
B) $244,219
C) $288,935
D) $277,900

Answer: B Level: Medium LO: 5

Use the following to answer questions 92-94:

Esty Corporation uses the weighted-average method in its process costing system. This month, the beginning inventory in the first processing department consisted of 800 units. The costs and percentage completion of these units in beginning inventory were:

	Cost	*Percent Complete*
Materials costs.....	$5,800	50%
Conversion costs	$6,500	30%

A total of 7,700 units were started and 6,600 units were transferred to the second processing department during the month. The following costs were incurred in the first processing department during the month:

Materials costs.....	$85,300
Conversion costs	$168,000

The ending inventory was 70% complete with respect to materials and 10% complete with respect to conversion costs.

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

92. What are the equivalent units for conversion costs for the month in the first processing department?
    A) 6,790
    B) 8,500
    C) 6,600
    D) 190

    Answer: A Level: Medium LO: 2,3

93. The cost per equivalent unit for materials for the month in the first processing department is closest to:
    A) $10.76
    B) $10.04
    C) $10.72
    D) $11.49

    Answer: D Level: Medium LO: 4

94. The total cost transferred from the first processing department to the next processing department during the month is closest to:
    A) $253,300
    B) $245,441
    C) $316,098
    D) $265,600

    Answer: B Level: Medium LO: 4

Use the following to answer questions 95-96:

Fuller Corporation uses the weighted-average method in its process costing system. This month, the beginning inventory in the first processing department consisted of 700 units. The costs and percentage completion of these units in beginning inventory were:

	Cost	*Percent Complete*
Materials costs.....	$12,700	85%
Conversion costs	$10,900	30%

A total of 9,800 units were started and 8,800 units were transferred to the second processing department during the month. The following costs were incurred in the first processing department during the month:

Materials costs.....	$175,600
Conversion costs	$420,900

The ending inventory was 85% complete with respect to materials and 70% complete with respect to conversion costs.

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

95. The total cost transferred from the first processing department to the next processing department during the month is closest to:
    A) $620,100
    B) $646,832
    C) $542,106
    D) $596,500

    Answer: C Level: Medium LO: 2,3,4,5

96. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
    A) $77,994
    B) $73,308
    C) $104,725
    D) $89,016

    Answer: A Level: Medium LO: 2,3,4,5

Use the following to answer questions 97-104:

Gunes Corporation uses the weighted-average method in its process costing system. This month, the beginning inventory in the first processing department consisted of 800 units. The costs and percentage completion of these units in beginning inventory were:

	Cost	*Percent Complete*
Materials costs.....	$10,600	65%
Conversion costs	$12,800	30%

A total of 8,500 units were started and 7,400 units were transferred to the second processing department during the month. The following costs were incurred in the first processing department during the month:

Materials costs.....	$142,100
Conversion costs	$359,500

The ending inventory was 50% complete with respect to materials and 35% complete with respect to conversion costs.

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

97. How many units are in ending work in process inventory in the first processing department at the end of the month?
    A) 1,900
    B) 1,100
    C) 7,700
    D) 900

    Answer: A Level: Easy LO: 3

98. What are the equivalent units for materials for the month in the first processing department?
A) 7,400
B) 9,300
C) 8,350
D) 950

Answer: C Level: Medium LO: 2

99. What are the equivalent units for conversion costs for the month in the first processing department?
A) 9,300
B) 8,065
C) 7,400
D) 665

Answer: B Level: Medium LO: 2

100. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $18.29
B) $17.02
C) $16.42
D) $15.28

Answer: A Level: Medium LO: 4

101. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $40.03
B) $46.16
C) $44.58
D) $48.47

Answer: B Level: Medium LO: 4

102. The cost per equivalent whole unit for the month in the first processing department is closest to:
A) $64.45
B) $56.45
C) $68.32
D) $70.95

Answer: A Level: Medium LO: 4

103. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $476,923
B) $599,376
C) $501,600
D) $525,000

Answer: A Level: Medium LO: 5

104. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
A) $61,227
B) $48,071
C) $42,859
D) $122,453

Answer: B Level: Medium LO: 5

Use the following to answer questions 105-107:

Domingo Corporation uses the weighted-average method in its process costing system. This month, the beginning inventory in the first processing department consisted of 400 units. The costs and percentage completion of these units in beginning inventory were:

	Cost	*Percent Complete*
Materials costs.....	$5,500	50%
Conversion costs	$1,700	20%

A total of 6,800 units were started and 6,100 units were transferred to the second processing department during the month. The following costs were incurred in the first processing department during the month:

Materials costs.....	$158,700
Conversion costs	$120,400

The ending inventory was 85% complete with respect to materials and 75% complete with respect to conversion costs.

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

105. How many units are in ending work in process inventory in the first processing department at the end of the month?
A) 700
B) 900
C) 6,400
D) 1,100

Answer: D Level: Easy LO: 3

106. What are the equivalent units for conversion costs for the month in the first processing department?
A) 7,200
B) 6,925
C) 6,100
D) 825

Answer: B Level: Medium LO: 2

107. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $22.04
B) $22.81
C) $23.34
D) $22.56

Answer: C Level: Medium LO: 4

Use the following to answer questions 108-114:

Haffner Corporation uses the weighted-average method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	500
Materials costs	$7,800
Conversion costs	$9,100
Percentage complete with respect to materials	85%
Percentage complete with respect to conversion	55%
Units started into production during the month	7,000
Units transferred to the next department during the month	6,100
Materials costs added during the month	$102,700
Conversion costs added during the month	$184,400
Ending work in process inventory:	
Units in ending work in process inventory	1,400
Percentage complete with respect to materials	60%
Percentage complete with respect to conversion	50%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

108. What are the equivalent units for materials for the month in the first processing department?
A) 840
B) 6,940
C) 7,500
D) 6,100

Answer: B Level: Medium LO: 2

109. What are the equivalent units for conversion costs for the month in the first processing department?
A) 6,100
B) 700
C) 6,800
D) 7,500

Answer: C Level: Medium LO: 2

110. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $15.92
B) $14.80
C) $13.69
D) $14.73

Answer: A Level: Medium LO: 4

111. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $28.46
B) $25.80
C) $29.88
D) $27.12

Answer: A Level: Medium LO: 4

112. The cost per equivalent whole unit for the month in the first processing department is closest to:
A) $40.53
B) $47.04
C) $44.38
D) $49.84

Answer: C Level: Medium LO: 4

113. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $304,000
B) $332,835
C) $270,706
D) $287,100

Answer: C Level: Medium LO: 5

114. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
A) $37,278
B) $33,293
C) $62,129
D) $31,065

Answer: B Level: Medium LO: 5

Use the following to answer questions 115-116:

Kurtulus Corporation uses the weighted-average method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	600
Materials costs	$7,000
Conversion costs	$2,300
Percentage complete with respect to materials	55%
Percentage complete with respect to conversion	25%
Units started into production during the month	6,500
Units transferred to the next department during the month	5,700
Materials costs added during the month	$110,100
Conversion costs added during the month	$83,200
Ending work in process inventory:	
Units in ending work in process inventory	1,400
Percentage complete with respect to materials	70%
Percentage complete with respect to conversion	55%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

115. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $202,600
B) $193,300
C) $175,247
D) $218,290

Answer: C Level: Medium LO: 2,4,5

116. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
A) $23,674
B) $43,043
C) $30,130
D) $27,355

Answer: D Level: Medium LO: 2,4,5

Use the following to answer questions 117-120:

Lucas Corporation uses the weighted-average method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	900
Materials costs	$9,600
Conversion costs	$7,700
Percentage complete with respect to materials	60%
Percentage complete with respect to conversion	45%
Units started into production during the month	8,100
Units transferred to the next department during the month	6,900
Materials costs added during the month	$115,800
Conversion costs added during the month	$120,500
Ending work in process inventory:	
Units in ending work in process inventory	2,100
Percentage complete with respect to materials	75%
Percentage complete with respect to conversion	20%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

117. What are the equivalent units for materials for the month in the first processing department?
A) 9,000
B) 1,575
C) 6,900
D) 8,475

Answer: D Level: Medium LO: 2

118. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $18.39
B) $16.46
C) $17.51
D) $14.24

Answer: C Level: Medium LO: 4

119. The cost per equivalent whole unit for the month in the first processing department is closest to:
A) $28.18
B) $36.75
C) $32.31
D) $34.25

Answer: C Level: Medium LO: 4

120. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
A) $13,570
B) $50,888
C) $30,660
D) $67,851

Answer: C Level: Medium LO: 5

Use the following to answer questions 121-122:

Inacio Corporation uses the weighted-average method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	800
Materials costs	$12,900
Conversion costs	$5,000
Percentage complete with respect to materials	75%
Percentage complete with respect to conversion	20%
Units started into production during the month	9,500
Units transferred to the next department during the month	8,400
Materials costs added during the month	$172,000
Conversion costs added during the month	$240,200
Ending work in process inventory:	
Units in ending work in process inventory	1,900
Percentage complete with respect to materials	90%
Percentage complete with respect to conversion	30%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

121. What are the equivalent units for conversion costs for the month in the first processing department?
A) 8,400
B) 8,970
C) 570
D) 10,300

Answer: B Level: Medium LO: 2

122. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $17.01
B) $17.95
C) $16.70
D) $18.29

Answer: D Level: Medium LO: 4

Use the following to answer questions 123-124:

Joos Corporation uses the weighted-average method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	600
Materials costs	$7,300
Conversion costs	$2,300
Percentage complete with respect to materials	50%
Percentage complete with respect to conversion	10%
Units started into production during the month	9,400
Units transferred to the next department during the month	8,600
Materials costs added during the month	$196,300
Conversion costs added during the month	$315,800
Ending work in process inventory:	
Units in ending work in process inventory	1,400
Percentage complete with respect to materials	70%
Percentage complete with respect to conversion	40%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

123. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $19.63
B) $21.25
C) $20.36
D) $20.49

Answer: B Level: Medium LO: 2,4

124. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $31.81
B) $34.73
C) $34.48
D) $36.47

Answer: B Level: Medium LO: 2,4

Use the following to answer questions 125-128:

Harward Company's Staining department recorded the following activity in June:

	Number of Units	*Labor and Overhead Percent Completed*
Work in process inventory, June 1	8,000	35%
Started into production during June	50,000	
Work in process inventory, June 30	12,000	55%

All materials are added at the beginning of the process in the Staining Department.

125. The equivalent units for labor and overhead for June, using the FIFO method, were:
A) 46,000 units
B) 49,800 units
C) 43,200 units
D) 52,600 units

Answer: B Level: Medium LO: 6 Appendix: 4

126. The equivalent units for labor and overhead for June, using the weighted-average method, were:
A) 52,600 units
B) 62,000 units
C) 50,000 units
D) 46,000 units

Answer: A Level: Medium LO: 2 Appendix: 4

127. The equivalent units for materials for June, using the FIFO method, were:
A) 46,000 units
B) 42,000 units
C) 58,000 units
D) 50,000 units

Answer: D Level: Medium LO: 6 Appendix: 4

128. The equivalent units for materials for June, using the weighted-average method, were:
A) 58,000 units
B) 52,600 units
C) 46,000 units
D) 60,000 units

Answer: A Level: Medium LO: 2 Appendix: 4

Use the following to answer questions 129-132:

Activity in Saggers Company's Assembly Department for the month of March follows:

		Percent Complete	
	Units	*Materials*	*Labor & Overhead*
Work in process inventory, March 1.....	6,000	60%	45%
Started into production during March.....	65,000		
Work in process inventory, March 31.....	4,000	35%	20%

129. The equivalent units for labor and overhead for March, using the weighted-average method, are:
A) 69,600 units
B) 67,800 units
C) 71,000 units
D) 69,000 units

Answer: B Level: Medium LO: 2 Appendix: 4

130. The equivalent units for materials for March, using the weighted-average method, are:
A) 69,000 units
B) 65,000 units
C) 68,400 units
D) 67,000 units

Answer: C Level: Medium LO: 2 Appendix: 4

131. The equivalent units for labor and overhead for March, using the FIFO method, are:
A) 63,100 units
B) 65,000 units
C) 62,500 units
D) 65,100 units

Answer: D Level: Medium LO: 6 Appendix: 4

132. The equivalent units for materials for March, using the FIFO method, are:
A) 64,800 units
B) 59,800 units
C) 66,000 units
D) 67,200 units

Answer: A Level: Medium LO: 6 Appendix: 4

Use the following to answer questions 133-136:

Levitt Company uses a process costing system. All direct materials are added at the beginning of the process. Levitt's production quantity schedule for November is reproduced below.

	Units
Work-in-process on November 1 (conversion 60% complete)	1,000
Units started during November	5,000
Total units to account for	6,000
Units completed and transferred out from beginning inventory	1,000
Units started and completed during November	3,000
Work-in-process on November 30 (conversion 20% complete)	2,000
Total units accounted for	6,000

133. Using the FIFO method, the equivalent units for direct materials for November are:
A) 5,000 units
B) 6,000 units
C) 4,400 units
D) 3,800 units

Answer: A Level: Medium LO: 6 Source: CMA, adapted Appendix: 4

134. Using the FIFO method, the equivalent units for conversion costs for November are:
A) 3,400 units
B) 3,800 units
C) 4,000 units
D) 4,400 units

Answer: B Level: Medium LO: 6 Source: CMA, adapted Appendix: 4

135. Using the weighted-average method, the equivalent units for direct materials for November are:
A) 3,400 units
B) 4,400 units
C) 5,000 units
D) 6,000 units

Answer: D Level: Medium LO: 2 Source: CMA, adapted Appendix: 4

136. Using the weighted-average method, the equivalent units for conversion costs for November are:
A) 3,400 units
B) 3,800 units
C) 4,000 units
D) 4,400 units

Answer: D Level: Medium LO: 2 Source: CMA, adapted Appendix: 4

Use the following to answer questions 137-138:

Qu Corporation uses the FIFO method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	900
Materials costs	$9,800
Conversion costs	$9,200
Percentage complete with respect to materials	55%
Percentage complete with respect to conversion	30%
Units started into production during the month	8,400
Materials costs added during the month	$130,400
Conversion costs added during the month	$220,600
Ending work in process inventory:	
Units in ending work in process inventory	2,200
Percentage complete with respect to materials	65%
Percentage complete with respect to conversion	25%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

137. How many units were started AND completed during the month in the first processing department?
A) 8,400
B) 7,100
C) 6,200
D) 9,300

Answer: C Level: Medium LO: 7 Appendix: 4

138. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $29.89
B) $34.07
C) $31.07
D) $31.38

Answer: A Level: Medium LO: 6,8 Appendix: 4

Use the following to answer questions 139-145:

Mullins Corporation uses the FIFO method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	700
Materials costs	$11,500
Conversion costs	$22,200
Percentage complete with respect to materials	75%
Percentage complete with respect to conversion	65%
Units started into production during the month	8,600
Units transferred to the next department during the month	7,800
Materials costs added during the month	$159,300
Conversion costs added during the month	$348,500
Ending work in process inventory:	
Units in ending work in process inventory	1,500
Percentage complete with respect to materials	65%
Percentage complete with respect to conversion	50%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

139. What are the equivalent units for materials for the month in the first processing department?
A) 975
B) 8,250
C) 9,300
D) 7,100

Answer: B Level: Medium LO: 6 Appendix: 4

140. What are the equivalent units for conversion costs for the month in the first processing department?
A) 8,095
B) 7,100
C) 9,300
D) 750

Answer: A Level: Medium LO: 6 Appendix: 4

141. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $20.42
B) $21.90
C) $19.31
D) $17.13

Answer: C Level: Medium LO: 8 Appendix: 4

142. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $48.79
B) $45.20
C) $44.68
D) $43.05

Answer: D Level: Medium LO: 8 Appendix: 4

143. The cost per equivalent whole unit for the month in the first processing department is closest to:
A) $62.36
B) $76.27
C) $66.10
D) $58.23

Answer: A Level: Medium LO: 8 Appendix: 4

144. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $490,382
B) $579,948
C) $507,800
D) $541,500

Answer: A Level: Medium LO: 9 Appendix: 4

145. The cost of ending work in process inventory in the first processing department according to the company's cost system is closest to:
A) $51,114
B) $46,770
C) $93,540
D) $60,801

Answer: A Level: Medium LO: 9 Appendix: 4

Use the following to answer questions 146-148:

Puri Corporation uses the FIFO method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	400
Materials costs	$4,800
Conversion costs	$3,300
Percentage complete with respect to materials	85%
Percentage complete with respect to conversion	45%
Units started into production during the month	5,800
Units transferred to the next department during the month	5,100
Materials costs added during the month	$69,500
Conversion costs added during the month	$82,300
Ending work in process inventory:	
Units in ending work in process inventory	1,100
Percentage complete with respect to materials	55%
Percentage complete with respect to conversion	45%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

146. What are the equivalent units for materials for the month in the first processing department?
A) 605
B) 6,200
C) 4,700
D) 5,365

Answer: D Level: Medium LO: 6 Appendix: 4

147. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $15.20
B) $18.33
C) $15.96
D) $16.14

Answer: A Level: Medium LO: 8 Appendix: 4

148. The total cost transferred from the first processing department to the next processing department during the month is closest to:
A) $159,900
B) $151,800
C) $174,549
D) $144,540

Answer: D Level: Medium LO: 9 Appendix: 4

Use the following to answer questions 149-150:

Normand Corporation uses the FIFO method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	700
Materials costs	$8,700
Conversion costs	$3,700
Percentage complete with respect to materials	70%
Percentage complete with respect to conversion	10%
Units started into production during the month	6,400
Units transferred to the next department during the month	5,600
Materials costs added during the month	$92,200
Conversion costs added during the month	$269,600
Ending work in process inventory:	
Units in ending work in process inventory	1,500
Percentage complete with respect to materials	80%
Percentage complete with respect to conversion	25%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

149. What are the equivalent units for materials for the month in the first processing department?
A) 4,900
B) 1,200
C) 6,310
D) 7,100

Answer: C Level: Medium LO: 6 Appendix: 4

150. The cost per equivalent unit for conversion costs for the first department for the month is closest to:
A) $45.66
B) $52.86
C) $47.94
D) $48.14

Answer: A Level: Medium LO: 8 Appendix: 4

Use the following to answer questions 151-152:

Ozdemir Corporation uses the FIFO method in its process costing system. Data concerning the first processing department for the most recent month are listed below:

Beginning work in process inventory:	
Units in beginning work in process inventory	200
Materials costs	$1,800
Conversion costs	$600
Percentage complete with respect to materials	55%
Percentage complete with respect to conversion	10%
Units started into production during the month	5,000
Units transferred to the next department during the month	4,500
Materials costs added during the month	$74,800
Conversion costs added during the month	$128,800
Ending work in process inventory:	
Units in ending work in process inventory	700
Percentage complete with respect to materials	85%
Percentage complete with respect to conversion	70%

Note: Your answers may differ from those offered below due to rounding error. In all cases, select the answer that is the closest to the answer you computed. To reduce rounding error, carry out all computations to at least three decimal places.

151. What are the equivalent units for conversion costs for the month in the first processing department?
A) 490
B) 4,300
C) 4,970
D) 5,200

Answer: C Level: Medium LO: 6 Appendix: 4

152. The cost per equivalent unit for materials for the month in the first processing department is closest to:
A) $16.36
B) $14.38
C) $16.62
D) $15.01

Answer: D Level: Medium LO: 8 Appendix: 4

Use the following to answer questions 153-154:

The information below was obtained from the records of Bapst Company for the month of May. The company uses the FIFO method in its process costing system.

	Units	*Labor and Overhead Percent Complete*
Work in process inventory, May 1	3,000	30%
Started into production	20,000	
Work in process inventory, May 31	4,000	40%

All materials are added at the beginning of the manufacturing process.

153. The equivalent units for material for the month are:
A) 21,600 units
B) 22,500 units
C) 16,000 units
D) 20,000 units

Answer: D Level: Medium LO: 6 Appendix: 4

154. The equivalent units for labor and overhead for the month are:
A) 17,600 units
B) 18,500 units
C) 19,700 units
D) 21,600 units

Answer: C Level: Medium LO: 6 Appendix: 4

Use the following to answer questions 155-157:

Marlan Manufacturing produces a product that passes through two processing departments. The units from the Molding Department are completed in the Assembly Department. The activity in the Assembly Department for the current month is presented below. Marlan uses the FIFO method in its process costing system.

Units in beginning work in process inventory (materials 0% complete; conversion 25% complete)	8,000
Units transferred in from the Molding Department during the month	42,000
Units completed and transferred to finished goods	38,000
Units in ending work in process inventory (materials 0% complete; conversion 40% complete)	12,000

155. The equivalent units (with respect to the Molding Department's costs) transferred from the Molding Department to the Assembly during the month were:
A) 30,000 units
B) 38,000 units
C) 40,800 units
D) 42,000 units

Answer: D Level: Medium LO: 6 Source: CMA, adapted Appendix: 4

156. The equivalent units for materials for the Assembly Department during the month were:
A) 30,000 units
B) 38,000 units
C) 40,800 units
D) 42,000 units

Answer: B Level: Medium LO: 6 Source: CMA, adapted Appendix: 4

157. The equivalent units for conversion costs for the Assembly Department during the month were:
A) 36,800 units
B) 38,000 units
C) 40,800 units
D) 42,800 units

Answer: C Level: Medium LO: 6 Source: CMA, adapted Appendix: 4

Essay Questions

158. Anchor Inc. uses the weighted-average method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	800
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	10%
Costs in the beginning inventory:	
Materials cost	$1,296
Conversion cost	$2,416
Units started into production during the month	16,000
Units completed and transferred out	16,500
Costs added to production during the month:	
Materials cost	$47,076
Conversion cost	$497,213
Work in process, ending:	
Units in process	300
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	70%

Required:

Prepare a production report for the department using the weighted-average method.

Level: Hard LO: 2,3,4,5

Answer:

Weighted Average method:

Quantity schedule and equivalent units

	Quantity Schedule	*Equivalent Units*	
		Materials	*Conversion*
Units to be accounted for:			
Work in process, beginning	800		
Started into production	16,000		
Total units accounted for	16,800		
Units accounted for as follows:			
Transferred to next department	16,500	16,500	16,500
Work in process, ending	300	180	210
Total units	16,800	16,680	16,710

Costs per equivalent unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 3,712	$ 1,296	$ 2,416
Cost added during the month	544,289	47,076	497,213
Total cost (a)	$548,001	$48,372	$499,629
Equivalent units (above) (b)		16,680	16,710
Cost per EU, (a) ÷ (b)		$2.900	$29.900
Cost per whole unit	$32.800		

Cost reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out	$541,200	16,500	16,500
Work in process, ending:			
Materials	522	180	
Conversion	6,279		210
Total work in process, ending	6,801		
Total cost	$548,001		

159. Ayres Inc. uses the weighted-average method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	300
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	60%
Costs in the beginning inventory:	
Materials cost	$1,314
Conversion cost	$6,102
Units started into production during the month	22,000
Units completed and transferred out	21,800
Costs added to production during the month:	
Materials cost	$164,436
Conversion cost	$728,058
Work in process, ending:	
Units in process	500
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	10%

Required:

Prepare a production report for the department using the weighted-average method.

Level: Hard LO: 2,3,4,5

Answer:

Weighted Average method:

Quantity schedule and equivalent units

	Quantity Schedule	*Equivalent Units*	
		Materials	*Conversion*
Units to be accounted for:			
Work in process, beginning	300		
Started into production	22,000		
Total units accounted for	22,300		
Units accounted for as follows:			
Transferred to next department	21,800	21,800	21,800
Work in process, ending	500	300	50
Total units	22,300	22,100	21,850

Costs per equivalent unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 7,416	$ 1,314	$ 6,102
Cost added during the month	892,494	164,436	728,058
Total cost (a)	$899,910	$165,750	$734,160
Equivalent units (above) (b)		22,100	21,850
Cost per EU, (a) ÷ (b)		$7.500	$33.600
Cost per whole unit	$41.100		

Cost reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out	$895,980	21,800	21,800
Work in process, ending:			
Materials	2,250	300	
Conversion	1,680		50
Total work in process, ending	3,930		
Total cost	$899,910		

160. Bae Inc. uses the weighted-average method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	100
Stage of completion with respect to materials	70%
Stage of completion with respect to conversion	90%
Costs in the beginning inventory:	
Materials cost	$182
Conversion cost	$3,429
Units started into production during the month	10,000
Units completed and transferred out	9,700
Costs added to production during the month:	
Materials cost	$27,986
Conversion cost	$373,815
Work in process, ending:	
Units in process	400
Stage of completion with respect to materials	90%
Stage of completion with respect to conversion	70%

Required:

Using the weighted-average method:

a. Determine the equivalent units of production for materials and conversion costs.
b. Determine the cost per equivalent unit for materials and conversion costs.
c. Determine the cost of units transferred out of the department during the month.
d. Determine the cost of ending work in process inventory in the department.

Level: Hard LO: 2,3,4,5

Answer:
a. through d. The answers to all of the questions can be found by filling out a production report as follows.

Quantity schedule and equivalent units

	Quantity Schedule
Units to be accounted for:	
Work in process, beginning	100
Started into production	10,000
Total units accounted for	10,100

		Equivalent Units	
		Materials	*Conversion*
Units accounted for as follows:			
Transferred to next department	9,700	9,700	9,700
Work in process, ending	400	360	280
Total units	10,100	10,060	9,980

Costs per equivalent unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 3,611	$ 182	$ 3,429
Cost added during the month	401,801	27,986	373,815
Total cost (a)	$405,412	$28,168	$377,244
Equivalent units (above) (b)		10,060	9,980
Cost per EU, (a) ÷ (b)		$2.800	$37.800
Cost per whole unit	$40.600		

Cost reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out	$393,820	9,700	9,700
Work in process, ending:			
Materials	1,008	360	
Conversion	10,584		280
Total work in process, ending	11,592		
Total cost	$405,412		

161. Banerjee Inc. uses the weighted-average method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	200
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	20%
Costs in the beginning inventory:	
Materials cost	$756
Conversion cost	$1,508
Units started into production during the month	18,000
Units completed and transferred out	17,700
Costs added to production during the month:	
Materials cost	$116,569
Conversion cost	$675,432
Work in process, ending:	
Units in process	500
Stage of completion with respect to materials	70%
Stage of completion with respect to conversion	80%

Required:

Using the weighted-average method:

a. Determine the equivalent units of production for materials and conversion costs.
b. Determine the cost per equivalent unit for materials and conversion costs.
c. Determine the cost of units transferred out of the department during the month.
d. Determine the cost of ending work in process inventory in the department.

Level: Hard LO: 2,3,4,5

Answer:
a. through d. The answers to all of the questions can be found by filling out a production report as follows.

Quantity schedule and equivalent units

	Quantity Schedule
Units to be accounted for:	
Work in process, beginning	200
Started into production	18,000
Total units accounted for	18,200

		Equivalent Units	
		Materials	*Conversion*
Units accounted for as follows:			
Transferred to next department	17,700	17,700	17,700
Work in process, ending	500	350	400
Total units	18,200	18,050	18,100

Costs per equivalent unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 2,264	$ 756	$ 1,508
Cost added during the month	792,001	116,569	675,432
Total cost (a)	$794,265	$117,325	$676,940
Equivalent units (above) (b)		18,050	18,100
Cost per EU, (a) ÷ (b)		$6.500	$37.400
Cost per whole unit	$43.900		

Cost reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out	$777,030	17,700	17,700
Work in process, ending:			
Materials	$2,275	350	
Conversion	14,960		400
Total work in process, ending	17,235		
Total cost	$794,265		

162. Cagna Inc. uses the weighted-average method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	700
Stage of completion with respect to materials	90%
Stage of completion with respect to conversion	10%
Units started into production during the month	15,000
Work in process, ending:	
Units in process	500
Stage of completion with respect to materials	50%
Stage of completion with respect to conversion	40%

Required:

Using the weighted-average method, determine the equivalent units of production for materials and conversion costs by compiling the "Quantity Schedule and Equivalent Units" portion of the production report.

Level: Medium LO: 2,3

Answer:

Quantity schedule and equivalent units

	Quantity Schedule	*Equivalent Units*	
		Materials	*Conversion*
Units to be accounted for:			
Work in process, beginning	700		
Started into production	15,000		
Total units accounted for	15,700		
Units accounted for as follows:			
Transferred to next department	15,200	15,200	15,200
Work in process, ending	500	250	200
Total units	15,700	15,450	15,400

163. Callet Inc. uses the weighted-average method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	500
Stage of completion with respect to materials	90%
Stage of completion with respect to conversion	70%
Units started into production during the month	23,000
Work in process, ending:	
Units in process	400
Stage of completion with respect to materials	80%
Stage of completion with respect to conversion	90%

Required:

Using the weighted-average method, determine the equivalent units of production for materials and conversion costs by compiling the "Quantity Schedule and Equivalent Units" portion of the production report.

Level: Medium LO: 2,3

Answer:

Quantity schedule and equivalent units

	Quantity Schedule		
Units to be accounted for:			
Work in process, beginning	500		
Started into production	23,000		
Total units accounted for	23,500		
		Equivalent Units	
		Materials	*Conversion*
Units accounted for as follows:			
Transferred to next department	23,100	23,100	23,100
Work in process, ending	400	320	360
Total units	23,500	23,420	23,460

164. Dachuna Inc. uses the FIFO method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	500
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	70%
Costs in the beginning inventory:	
Materials cost	$1,020
Conversion cost	$8,925
Units started into production during the month	10,000
Units completed and transferred out	9,600
Costs added to production during the month:	
Materials cost	$31,488
Conversion cost	$259,548
Work in process, ending:	
Units in process	900
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	90%

Required:

Prepare a production report for the department using the FIFO method.

Level: Hard LO: 6,7,8,9 Appendix: 4

Answer:

Quantity Schedule and Equivalent Units

	Quantity Schedule
Units to be accounted for:	
Work in process, beginning	500
Started into production	10,000
Total units to be accounted for	10,500

		Equivalent Units	
		Materials	*Conversion*
Units accounted for as follows:			
Transferred out:			
From the beginning inventory	500	200	150
Started and completed	9,100	9,100	9,100
Work in process, ending	900	540	810
Total units accounted for	10,500	9,840	10,060

Costs per Equivalent Unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 9,945		
Cost added during the month (a)	291,036	$31,488	$259,548
Total cost to be accounted for	$300,981		
Equivalent units (above) (b)		9,840	10,060
Cost per EU, (a) ÷ (b)		$3.200	$25.800
Cost per whole unit	$29.000		

Cost Reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out:			
From the beginning inventory:			
Cost in the beginning inventory	$ 9,945		
Cost to complete these units:			
Materials	640	200	
Conversion	3,870		150
Total cost from beginning inventory	14,455		
Units started and completed	263,900	9,100	9,100
Total cost transferred out	278,355		

Work in process, ending:			
Materials	1,728	540	
Conversion	20,898		810
Total work in process, ending	22,626		
Total cost accounted for	$300,981		

165. Dahal Inc. uses the FIFO method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	900
Stage of completion with respect to materials	80%
Stage of completion with respect to conversion	90%
Costs in the beginning inventory:	
Materials cost	$1,008
Conversion cost	$27,621
Units started into production during the month	19,000
Units completed and transferred out	19,700
Costs added to production during the month:	
Materials cost	$22,992
Conversion cost	$650,504
Work in process, ending:	
Units in process	200
Stage of completion with respect to materials	90%
Stage of completion with respect to conversion	10%

Required:

Prepare a production report for the department using the FIFO method.

Level: Hard LO: 6,7,8,9 Appendix: 4

Answer:

Quantity Schedule and Equivalent Units

	Quantity Schedule
Units to be accounted for:	
Work in process, beginning	900
Started into production	19,000
Total units to be accounted for	19,900

		Equivalent Units	
		Materials	*Conversion*
Units accounted for as follows:			
Transferred out:			
From the beginning inventory	900	180	90
Started and completed	18,800	18,800	18,800
Work in process, ending	200	180	20
Total units accounted for	19,900	19,160	18,910

Costs per Equivalent Unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 28,629		
Cost added during the month (a)	673,496	$22,992	$650,504
Total cost to be accounted for	$702,125		
Equivalent units (above) (b)		19,160	18,910
Cost per EU, (a) ÷ (b)		$1.20	$34.40
Cost per whole unit	$35.60		

Cost Reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out:			
From the beginning inventory:			
Cost in the beginning inventory	$ 28,629		
Cost to complete these units:			
Materials	216	180	
Conversion	3,096		90
Total cost from beginning inventory	31,941		
Units started and completed	669,280	18,800	18,800
Total cost transferred out	701,221		

Work in process, ending:			
Materials	216	180	
Conversion	688		20
Total work in process, ending	904		
Total cost accounted for	$702,125		

166. Ebert Inc. uses the FIFO method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	600
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	70%
Costs in the beginning inventory:	
Materials cost	$1,188
Conversion cost	$16,548
Units started into production during the month	18,000
Units completed and transferred out	18,400
Costs added to production during the month:	
Materials cost	$56,234
Conversion cost	$715,394
Work in process, ending:	
Units in process	200
Stage of completion with respect to materials	50%
Stage of completion with respect to conversion	20%

Required:

Using the FIFO method:

a. Determine the equivalent units of production for materials and conversion costs.
b. Determine the cost per equivalent unit for materials and conversion costs.
c. Determine the cost of units transferred out of the department during the month.
d. Determine the cost of ending work in process inventory in the department.

Level: Hard LO: 6,7,8,9 Appendix: 4

Answer:
a. through d. can be answered by completing a production report as follows:

Quantity Schedule and Equivalent Units

	Quantity Schedule
Units to be accounted for:	
Work in process, beginning	600
Started into production	18,000
Total units to be accounted for	18,600

		Equivalent Units	
		Materials	*Conversion*
Units accounted for as follows:			
Transferred out:			
From the beginning inventory	600	240	180
Started and completed	17,800	17,800	17,800
Work in process, ending	200	100	40
Total units accounted for	18,600	18,140	18,020

Costs per Equivalent Unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 17,736		
Cost added during the month (a)	771,628	$56,234	$715,394
Total cost to be accounted for	$789,364		
Equivalent units (above) (b)		18,140	18,020
Cost per EU, (a) ÷ (b)		$3.10	$39.70
Cost per whole unit	$42.80		

Cost Reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out:			
From the beginning inventory:			
Cost in the beginning inventory	$ 17,736		
Cost to complete these units:			
Materials	744	240	
Conversion	7,146		180
Total cost from beginning inventory	25,626		
Units started and completed	761,840	17,800	17,800
Total cost transferred out	787,466		
Work in process, ending:			
Materials	310	100	
Conversion	1,588		40
Total work in process, ending	1,898		
Total cost accounted for	$789,364		

167. Edwards Inc. uses the FIFO method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	100
Stage of completion with respect to materials	50%
Stage of completion with respect to conversion	90%
Costs in the beginning inventory:	
Materials cost	$260
Conversion cost	$3,366
Units started into production during the month	20,000
Units completed and transferred out	19,800
Costs added to production during the month:	
Materials cost	$99,650
Conversion cost	$745,329
Work in process, ending:	
Units in process	300
Stage of completion with respect to materials	60%
Stage of completion with respect to conversion	20%

Required:

Using the FIFO method:
a. Determine the equivalent units of production for materials and conversion costs.
b. Determine the cost per equivalent unit for materials and conversion costs.
c. Determine the cost of units transferred out of the department during the month.
d. Determine the cost of ending work in process inventory in the department.

Level: Hard LO: 6,7,8,9 Appendix: 4

Answer:
a. through d. can be answered by completing a production report as follows:

Quantity Schedule and Equivalent Units

	Quantity Schedule	*Equivalent Units*	
		Materials	*Conversion*
Units to be accounted for:			
Work in process, beginning	100		
Started into production	20,000		
Total units to be accounted for	20,100		
Units accounted for as follows:			
Transferred out:			
From the beginning inventory	100	50	10
Started and completed	19,700	19,700	19,700
Work in process, ending	300	180	60
Total units accounted for	20,100	19,930	19,770

Costs per Equivalent Unit

	Total Cost	*Materials*	*Conversion*
Cost to be accounted for:			
Work in process, beginning	$ 3,626		
Cost added during the month (a)	844,979	$99,650	$745,329
Total cost to be accounted for	$848,605		
Equivalent units (above) (b)		19,930	19,770
Cost per EU, (a) ÷ (b)		$5.00	$37.70
Cost per whole unit	$42.70		

Cost Reconciliation

	Total Cost	*Equivalent Units*	
		Materials	*Conversion*
Cost accounted for as follows:			
Transferred out:			
From the beginning inventory:			
Cost in the beginning inventory	$ 3,626		
Cost to complete these units:			
Materials	250	50	
Conversion	377		10
Total cost from beginning inventory	4,253		
Units started and completed	841,190	19,700	19,700
Total cost transferred out	845,443		
Work in process, ending:			
Materials	900	180	
Conversion	2,262		60
Total work in process, ending	3,162		
Total cost accounted for	$848,605		

168. Fuller Inc. uses the FIFO method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	300
Stage of completion with respect to materials	70%
Stage of completion with respect to conversion	50%
Units started into production during the month	25,000
Work in process, ending:	
Units in process	300
Stage of completion with respect to materials	80%
Stage of completion with respect to conversion	20%

Required:

Using the FIFO method, determine the equivalent units of production for materials and conversion costs by compiling the “Quantity Schedule and Equivalent Units” portion of the production report.

Level: Medium LO: 6,7 Appendix: 4

Answer:

Quantity Schedule and Equivalent Units

	Quantity Schedule	*Equivalent Units*	
		Materials	*Conversion*
Units to be accounted for:			
Work in process, beginning	300		
Started into production	25,000		
Total units to be accounted for	25,300		
Units accounted for as follows:			
Transferred out:			
From the beginning inventory	300	90	150
Started and completed	24,700	24,700	24,700
Work in process, ending	300	240	60
Total units accounted for	25,300	25,030	24,910

169. Fulghieri Inc. uses the FIFO method in its process costing system. The following data concern the operations of the company's first processing department for a recent month.

Work in process, beginning:	
Units in process	600
Stage of completion with respect to materials	70%
Stage of completion with respect to conversion	10%
Units started into production during the month	10,000
Work in process, ending:	
Units in process	400
Stage of completion with respect to materials	70%
Stage of completion with respect to conversion	20%

Required:

Using the FIFO method, determine the equivalent units of production for materials and conversion costs by compiling the "Quantity Schedule and Equivalent Units" portion of the production report.

Level: Medium LO: 6,7 Appendix: 4

Answer:

Quantity Schedule and Equivalent Units

	Quantity Schedule	*Equivalent Units*	
		Materials	*Conversion*
Units to be accounted for:			
Work in process, beginning	600		
Started into production	10,000		
Total units to be accounted for	10,600		
Units accounted for as follows:			
Transferred out:			
From the beginning inventory	600	180	540
Started and completed	9,600	9,600	9,600
Work in process, ending	400	280	80
Total units accounted for	10,600	10,060	10,220

Chapter 5 Cost Behavior: Analysis and Use

True/False Questions

1. A variable cost is a cost that remains constant in total throughout wide ranges of activity.

   Answer: False Level: Easy LO: 1

2. If the activity level increases, then one would expect the variable cost per unit to increase as well.

   Answer: False Level: Medium LO: 1

3. Fixed costs expressed on a per unit basis vary inversely with changes in activity.

   Answer: True Level: Medium LO: 1

4. Calculation of fixed costs on a per unit basis is critical for internal reporting to managers.

   Answer: False Level: Medium LO: 1

5. Management's strategy will determine to a large degree the classification of a fixed cost as discretionary or committed.

   Answer: True Level: Easy LO: 1

6. Committed fixed costs cannot be reduced to zero without seriously impairing the company's long term goals.

   Answer: True Level: Easy LO: 1

7. Unless the behavior pattern of each cost of a company is understood, the impact of a company's activities on its costs will not be known until after the activity has occurred.

   Answer: True Level: Medium LO: 1

8. When using the high-low method, if the high and low activity levels do not coincide with the high and low levels of cost, then the analyst should use the points with the high and low levels of cost.

   Answer: False Level: Medium LO: 3

9. A traditional functional income statement organizes costs on the basis of behavior.

   Answer: False Level: Easy LO: 4

10. The contribution income statement organizes costs according to behavior.

    Answer: True Level: Easy LO: 4

11. The contribution margin represents the amount available to contribute toward covering fixed expenses and toward profits for the period.

    Answer: True Level: Easy LO: 4

12. Most companies use the contribution approach in preparing financial statements for external reporting purposes.

    Answer: False Level: Medium LO: 4

13. In the least-squares regression method, total cost is considered to be "Y", the dependent variable.

    Answer: True Level: Easy LO: 5

14. The least-squares regression method computes the regression line that minimizes the sum of the squared deviations from the plotted points to the line.

    Answer: True Level: Medium LO: 5

15. Account analysis is a special form of least-squares regression in which more than one account is analysed at the same time.

    Answer: False Level: Easy LO: 6

Multiple Choice Questions

16. As the level of activity increases, how will a mixed cost in total and per unit behave?

	In Total	*Per Unit*
A)	Increase	Decrease
B)	Increase	Increase
C)	Increase	No effect
D)	Decrease	Increase
E)	Decrease	No effect

Answer: A Level: Hard LO: 1

17. Since Anytime Pizza is open 24 hours a day, its pizza oven is constantly on and is, therefore, always using natural gas. However, when there is no pizza in the oven, the oven automatically lowers its flame and reduces its natural gas usage by 70%. The cost of natural gas would best be described as a:
A) fixed cost.
B) mixed cost.
C) step-variable cost.
D) true variable cost.

Answer: B Level: Easy LO: 1

18. When the activity level is expected to decline within the relevant range, what effects would be anticipated with respect to each of the following?

	Fixed costs per unit	*Variable costs per unit*
A)	Increase	Increase
B)	Increase	No change
C)	No change	No change
D)	No change	Increase

Answer: B Level: Medium LO: 1 Source: CPA, adapted

19. Within the relevant range, variable costs can be expected to:
A) vary in total in direct proportion to changes in the activity level.
B) remain constant in total as the activity level changes.
C) increase on a per unit basis as the activity level increases.
D) increase on a per unit basis as the activity level decreases.
E) none of these.

Answer: A Level: Easy LO: 1

20. Which of the following is not correct when referring to fixed costs?
    A) Whether a cost is committed or discretionary will depend in large part on management's strategy.
    B) Discretionary fixed costs arise from annual decisions by management.
    C) Fixed costs remain constant in total throughout the relevant range.
    D) Committed fixed costs can often be reduced to zero for short periods of time without seriously impairing the long-run goals of the company.
    E) The trend in companies today is toward greater fixed costs relative to variable costs.

    Answer: D Level: Easy LO: 1

21. Which of the following statements is true when referring to fixed costs?
    A) Committed fixed costs arise from the annual decisions by management.
    B) As volume increases, unit fixed cost and total fixed cost will change.
    C) Fixed costs increase in total throughout the relevant range.
    D) Discretionary fixed costs can often be reduced to zero for short periods of time without seriously impairing the long-run goals of the company.

    Answer: D Level: Easy LO: 1

22. For the past 8 months, Jinan Corporation has experienced a steady increase in its cost per unit even though total costs have remained stable This cost per unit increase may be due to _____ costs because the level of activity at Jinan is _____.
    A) fixed, decreasing
    B) fixed, increasing
    C) variable, decreasing
    D) variable, increasing

    Answer: A Level: Medium LO: 1

23. Discretionary fixed costs:
    A) cannot be changed since they are fixed.
    B) have a long-term planning horizon, generally encompassing many years.
    C) are made up of facilities, equipment, and basic organization.
    D) responses b and c are both correct.
    E) none of these.

    Answer: E Level: Easy LO: 1

24. An example of a committed fixed cost is:
    A) management training seminars.
    B) a long-term equipment lease.
    C) research and development.
    D) advertising.

    Answer: B Level: Easy LO: 1

25. Which of the following would usually be considered a committed fixed cost for a retail sales corporation?
    A) lease payments made on its store buildings
    B) the cost of the Caribbean trip given to the employee of the year
    C) the cost of running an annual leadership seminar for managers
    D) both a and c above

    Answer: A Level: Medium LO: 1

26. Which of the following would usually be considered a discretionary fixed cost for a financial planning company?
    A) the cost of the annual employee picnic
    B) property taxes on its corporate office building
    C) the cost of internships for selected college seniors
    D) both a and c above

    Answer: D Level: Medium LO: 1

27. Which of the following is unlikely to be classified as a fixed cost with respect to the number of units produced and sold?
    A) Property taxes on a headquarters building.
    B) Legal department salaries.
    C) Cost of leasing the company's mainframe computer.
    D) Production supplies.

    Answer: D Level: Easy LO: 1

28. The following data have been collected for four different cost items.

Cost Item	*Cost at 100 units*	*Cost at 140 units*
W	$8,000	$10,560
X	$5,000	$5,000
Y	$6,500	$9,100
Z	$6,700	$8,580

Which of the following classifications of these cost items by cost behavior is correct?

	Cost W	*Cost X*	*Cost Y*	*Cost Z*
A)	variable	fixed	mixed	variable
B)	mixed	fixed	variable	mixed
C)	variable	fixed	variable	variable
D)	mixed	fixed	mixed	mixed

Answer: B Level: Hard LO: 1 Source: CIMA, adapted

29. Which of the following methods of analyzing mixed costs can be used to estimate an equation for the mixed cost?

	High-Low	*Least-Squares*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: A Level: Easy LO: 2,5

30. A multiple regression equation has:
A) more than one dependent variable.
B) more than one independent variable.
C) more than one amount for total fixed cost.
D) both A and B above.

Answer: B Level: Medium LO: 2,5

31. In describing the cost formula equation, Y = a + bX, which of the following is correct:
    A) "Y" is the independent variable.
    B) "a" is the variable cost per unit.
    C) "a" and "b" are valid for all levels of activity.
    D) in the high-low method, "b" equals the change in cost divided by the change in activity.

    Answer: D Level: Medium LO: 3

32. The high-low method is used with which of the following types of costs?
    A) Variable.
    B) Mixed.
    C) Fixed.
    D) Step-variable.

    Answer: B Level: Medium LO: 3

33. The contribution approach income statement:
    A) organizes costs on a functional basis.
    B) provides owners with more cash flows.
    C) is particularly helpful to the manager in planning and decision making.
    D) provides a gross margin figure from which selling and administrative expenses are deducted.
    E) none of these.

    Answer: C Level: Medium LO: 4

34. Contribution margin is:
    A) Sales less cost of goods sold.
    B) Sales less variable production, variable selling, and variable administrative expenses.
    C) Sales less variable production expense.
    D) Sales less all variable and fixed expenses.
    E) none of the above.

    Answer: B Level: Easy LO: 4

35. The contribution approach to income statement preparation:
A) organizes costs according to the functions of production, administration, and sales.
B) is used for external reporting.
C) organizes costs according to their variable and fixed cost behavior.
D) both b and c are true.
E) both a and b are true

Answer: C Level: Easy LO: 4

36. Iaci Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $133.60 per unit.

Sales volume (units)	4,000	5,000
Cost of sales	$383,600	$479,500
Selling, general, and administrative costs	$124,400	$136,000

The best estimate of the total contribution margin when 4,300 units are sold is:
A) $112,230
B) $162,110
C) $28,380
D) $45,150

Answer: A Level: Medium LO: 1,3,4

37. Iacob Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $103.40 per unit.

Sales volume (units)	5,000	6,000
Cost of sales	$315,500	$378,600
Selling, general, and administrative costs	$162,500	$177,600

The best estimate of the total contribution margin when 5,300 units are sold is:
A) $56,710
B) $133,560
C) $41,340
D) $213,590

Answer: B Level: Medium LO: 1,3,4

38. Shipping costs at Columbia Mining Company are a mixture of variable and fixed components The company shipped 8,000 tons of coal for $400,000 in shipping costs in February and 10,000 tons for $499,000 in March Assuming that this activity is within the relevant range, expected shipping costs for 11,000 tons would be:
A) $544,500
B) $548,500
C) $422,222
D) $554,000

Answer: B Level: Easy LO: 1,3

39. Anderson Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	4,000 units	5,000 units
Direct materials	$99.20 per unit	$99.20 per unit
Direct labor	$45.50 per unit	$45.50 per unit
Manufacturing overhead	$94.00 per unit	$77.60 per unit

The best estimate of the total monthly fixed manufacturing cost is:
A) $388,000
B) $954,800
C) $376,000
D) $328,000

Answer: D Level: Hard LO: 1,3

40. Andom Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	1,000 units	2,000 units
Direct materials	$15.20 per unit	$15.20 per unit
Direct labor	$30.50 per unit	$30.50 per unit
Manufacturing overhead	$54.10 per unit	$37.40 per unit

The best estimate of the total monthly fixed manufacturing cost is:
A) $74,800
B) $54,100
C) $99,800
D) $33,400

Answer: D Level: Hard LO: 1,3

41. Baker Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	1,000 units	3,000 units
Direct materials	$30.90 per unit	$30.90 per unit
Direct labor	$40.20 per unit	$40.20 per unit
Manufacturing overhead	$64.60 per unit	$33.80 per unit

The best estimate of the total variable manufacturing cost per unit is:
A) $89.50
B) $18.40
C) $71.10
D) $30.90

Answer: A Level: Hard LO: 1,3

42. Bakan Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	3,000 units	4,000 units
Direct materials	$86.30 per unit	$86.30 per unit
Direct labor	$26.40 per unit	$26.40 per unit
Manufacturing overhead	$75.90 per unit	$60.40 per unit

The best estimate of the total variable manufacturing cost per unit is:
A) $126.60
B) $86.30
C) $13.90
D) $112.70

Answer: A Level: Hard LO: 1,3

43. Cardiv Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	4,000 units	5,000 units
Direct materials	$85.80 per unit	$85.80 per unit
Direct labor.....	$56.10 per unit	$56.10 per unit
Manufacturing overhead.....	$73.60 per unit	$62.10 per unit

The best estimate of the total cost to manufacture 4,300 units is closest to:
A) $877,200
B) $909,400
C) $901,925
D) $926,650

Answer: B Level: Hard LO: 1,3

44. Caraco Corporation has provided the following production and average cost data for two levels of monthly production volume. The company produces a single product.

Production volume	7,000 units	8,000 units
Direct materials	$87.40 per unit	$87.40 per unit
Direct labor.....	$20.20 per unit	$20.20 per unit
Manufacturing overhead.....	$101.50 per unit	$90.80 per unit

The best estimate of the total cost to manufacture 7,300 units is closest to:
A) $1,487,375
B) $1,448,320
C) $1,500,750
D) $1,526,430

Answer: C Level: Hard LO: 1,3

45. Davis Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	1,000 units	2,000 units
Direct materials	$44,200	$88,400
Direct labor.....	$37,300	$74,600
Manufacturing overhead.....	$48,500	$62,200

The best estimate of the total monthly fixed manufacturing cost is:
A) $130,000
B) $177,600
C) $34,800
D) $225,200

Answer: C Level: Medium LO: 1,3

46. Dacosta Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	6,000 units	7,000 units
Direct materials	$369,600	$431,200
Direct labor.....	$309,600	$361,200
Manufacturing overhead.....	$919,800	$937,300

The best estimate of the total monthly fixed manufacturing cost is:
A) $1,599,000
B) $1,664,350
C) $814,800
D) $1,729,700

Answer: C Level: Medium LO: 1,3

47. Eddy Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	6,000 units	7,000 units
Direct materials	$582,600	$679,700
Direct labor.....	$136,200	$158,900
Manufacturing overhead.....	$691,800	$714,700

The best estimate of the total variable manufacturing cost per unit is:
A) $22.90
B) $119.80
C) $142.70
D) $97.10

Answer: C Level: Medium LO: 1,3

48. Edal Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	5,000 units	6,000 units
Direct materials	$266,500	$319,800
Direct labor.....	$52,000	$62,400
Manufacturing overhead.....	$748,500	$769,200

The best estimate of the total variable manufacturing cost per unit is:
A) $63.70
B) $84.40
C) $53.30
D) $20.70

Answer: B Level: Medium LO: 1,3

49. Farmington Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	6,000 units	7,000 units
Direct materials	$195,000	$227,500
Direct labor.....	$113,400	$132,300
Manufacturing overhead.....	$913,200	$931,700

The best estimate of the total cost to manufacture 6,300 units is closest to:
A) $1,162,350
B) $1,242,570
C) $1,222,515
D) $1,282,680

Answer: B Level: Medium LO: 1,3

50. Farac Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	4,000 units	5,000 units
Direct materials	$208,800	$261,000
Direct labor.....	$119,200	$149,000
Manufacturing overhead.....	$319,200	$329,500

The best estimate of the total cost to manufacture 4,300 units is closest to:
A) $674,890
B) $665,855
C) $695,740
D) $635,970

Answer: A Level: Medium LO: 1,3

51. Gambino Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $138.80 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$369,000	$430,500
Selling, general, and administrative costs	$407,400	$418,600

The best estimate of the total monthly fixed cost is:
A) $776,400
B) $340,200
C) $812,750
D) $849,100

Answer: B Level: Medium LO: 1,3

52. Gamach Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $104.50 per unit.

Sales volume (units)	5,000	6,000
Cost of sales	$295,000	$354,000
Selling, general, and administrative costs	$186,000	$202,800

The best estimate of the total monthly fixed cost is:
A) $102,000
B) $518,900
C) $556,800
D) $481,000

Answer: A Level: Medium LO: 1,3

53. Harris Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $84.40 per unit.

Sales volume (units)	5,000	6,000
Cost of sales	$285,000	$342,000
Selling, general, and administrative costs	$107,500	$120,000

The best estimate of the total variable cost per unit is:
A) $77.00
B) $57.00
C) $69.50
D) $78.50

Answer: C Level: Medium LO: 1,3

54. Hara Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $159.80 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$363,600	$424,200
Selling, general, and administrative costs	$531,000	$547,400

The best estimate of the total variable cost per unit is:
A) $77.00
B) $60.60
C) $149.10
D) $138.80

Answer: A Level: Medium LO: 1,3

55. Given the cost formula Y = $12,500 + $5.00X, total cost for an activity level of 4,000 units would be:
A) $20,000
B) $12,500
C) $16,000
D) $32,500

Answer: D Level: Easy LO: 1

56. Given the cost formula Y = $13,000 + $7.00X, the total cost for an activity level of 3,000 units would be:
A) $13,000
B) $21,000
C) $18,000
D) $34,000

Answer: D Level: Easy LO: 1

57. The following data pertains to activity and maintenance costs for two recent years:

	Year 2	*Year 1*
Activity level in units	11,125	6,000
Maintenance cost	$6,250	$4,200

If the high-low method is used to separate fixed and variable components of the cost, which of the following statements is correct?
A) The variable cost is $0.70 per unit of activity
B) The fixed cost is $2,050
C) The variable cost is $2.50 per unit of activity
D) The fixed cost is $1,800

Answer: D Level: Easy LO: 3

58. The following data relate to two levels of activity at an out-patient clinic in a hospital:

Number of patient-visits	4,500	5,750
General overhead	$269,750	$289,125

The best estimate of the variable general overhead cost per patient-visit is closest to:
A) $15.50
B) $44.44
C) $59.94
D) $50.28

Answer: A Level: Easy LO: 3 Source: CIMA, adapted

59. At a sales level of $365,000, Lewis Company's gross margin is $20,000 less than its contribution margin, its net operating income is $70,000, and its selling and administrative expenses total $130,000 At this sales level, its contribution margin would be:
A) $295,000
B) $180,000
C) $220,000
D) $200,000

Answer: C Level: Hard LO: 4

60. Your boss would like you to estimate the fixed and variable components of a particular cost Actual data for this cost over four recent periods appear below.

	Activity	*Cost*
Period 1.....	25	$363
Period 2.....	22	$345
Period 3.....	23	$348
Period 4.....	20	$322

Using the least-squares regression method, what is the cost formula for this cost?
A) Y = $164.50 + $8.00X
B) Y = $0.00 + $15.31X
C) Y = $160.36 + $8.18X
D) Y = $168.08 + $5.27X

Answer: A Level: Hard LO: 5 Appendix: 5

61. Your boss would like you to estimate the fixed and variable components of a particular cost Actual data for this cost over four recent periods appear below.

	Activity	*Cost*
Period 1.....	22	235
Period 2.....	23	243
Period 3.....	25	255
Period 4.....	20	227

Using the least-squares regression method, what is the cost formula for this cost?
A) Y = $107.45 + $5.89X
B) Y = $0.00 + $10.67X
C) Y = $111.92 + $5.69X
D) Y = $120.81 + $3.56X

Answer: C Level: Hard LO: 5 Appendix: 5

Use the following to answer questions 62-64:

Callis Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $141.60 per unit.

Sales volume (units)	5,000	6,000
Cost of sales	$265,500	$318,600
Selling, general, and administrative costs	$393,500	$406,800

62. The best estimate of the total monthly fixed cost is:
    A) $692,200
    B) $725,400
    C) $659,000
    D) $327,000

    Answer: D Level: Medium LO: 1,3

63. The best estimate of the total variable cost per unit is:
    A) $131.80
    B) $53.10
    C) $66.40
    D) $120.90

    Answer: C Level: Medium LO: 1,3

64. The best estimate of the total contribution margin when 5,300 units are sold is:
    A) $51,940
    B) $469,050
    C) $109,710
    D) $398,560

    Answer: D Level: Medium LO: 1,3,4

Use the following to answer questions 65-67:

Call Corporation is a wholesaler that sells a single product. Management has provided the following cost data for two levels of monthly sales volume. The company sells the product for $140.50 per unit.

Sales volume (units)	6,000	7,000
Cost of sales	$497,400	$580,300
Selling, general, and administrative costs	$273,600	$294,700

65. The best estimate of the total monthly fixed cost is:
    A) $875,000
    B) $147,000
    C) $771,000
    D) $823,000

    Answer: B Level: Medium LO: 1,3

66. The best estimate of the total variable cost per unit is:
    A) $82.90
    B) $128.50
    C) $104.00
    D) $125.00

    Answer: C Level: Medium LO: 1,3

67. The best estimate of the total contribution margin when 6,300 units are sold is:
    A) $75,600
    B) $97,650
    C) $362,880
    D) $229,950

    Answer: D Level: Medium LO: 1,3,4

Use the following to answer questions 68-71:

Comparative income statements for Tudor Retailing Company for the last two months are presented below:

	September	*October*
Sales in units	5,000	7,000
Sales revenue	$100,000	$140,000
Less cost of goods sold	40,000	56,000
Gross margin	60,000	84,000
Less operating expenses:		
Shipping expense	7,500	10,500
Clerical expense	10,000	12,000
Maintenance expense	17,000	17,000
Total operating expense	34,500	39,500
Net operating income	$ 25,500	$ 44,500

68. Which of the following classifications best describes the behavior of shipping expense?
    A) Mixed
    B) Variable
    C) Fixed
    D) none of the above

    Answer: B Level: Easy LO: 1

69. Which of the following classifications best describes the behavior of clerical expense?
    A) Mixed
    B) Variable
    C) Fixed
    D) none of the above

    Answer: A Level: Easy LO: 1

70. Assuming that Tudor Retailing Company uses the high-low method of analysis, the total monthly fixed cost for Tudor Retailing Company would be estimated to be:
    A) $34,500
    B) $17,000
    C) $27,000
    D) $22,000

    Answer: D Level: Medium LO: 3

71. Assuming that Tudor Retailing Company uses the high-low method of analysis, the total operating expense if Tudor Retailing Company sells 6,500 units during a month would be estimated to be:
    A) $37,000
    B) $44,850
    C) $38,250
    D) $36,679

    Answer: C Level: Medium LO: 3

Use the following to answer questions 72-73:

The management of Casablanca Manufacturing Corporation believes that machine-hours is an appropriate measure of activity for overhead cost Shown below are machine-hours and total overhead costs for the past six months:

	Machine-Hours	*Overhead Cost*
Jan	150,000	$339,000
Feb	140,000	$328,000
Mar	160,000	$350,000
Apr	130,000	$319,500
May	170,000	$362,500
Jun	200,000	$400,000

Assume that the relevant range includes all of the activity levels mentioned in this problem.

72. If Casablanca expects to incur 185,000 machine hours next month, what will the estimated total overhead cost be using the high-low method?
    A) $212,750
    B) $359,750
    C) $382,750
    D) $381,700

    Answer: C Level: Medium LO: 3

73. What is Casablanca's independent variable?
    A) the year
    B) the machine hours
    C) the total overhead cost
    D) the relevant range

    Answer: B Level: Easy LO: 1

Use the following to answer questions 74-75:

The management of the Medulla Fitness Club believes that the attendance by its members is an appropriate activity measure for total operating cost Shown below are attendance figures and total operating costs for the past six months:

	Members Attendance	*Operating Cost*
Jan	150,000	$786,000
Feb	130,000	$735,000
Mar	160,000	$792,000
Apr	120,000	$706,000
May	170,000	$799,000
Jun	190,000	$874,000

Assume that the relevant range includes all of the activity levels mentioned in this problem.

74. If Medulla expects to have 180,000 members attend the club in July, what will the estimated total operating cost be using the high-low method?
    A) $836,500
    B) $837,000
    C) $850,000
    D) $852,000

    Answer: C Level: Medium LO: 3

75. What is Medulla's dependent variable?
    A) the month
    B) the members' attendance
    C) the total operating cost
    D) the relevant range

    Answer: C Level: Easy LO: 1

Use the following to answer questions 76-77:

Cosco, Inc. has accumulated the following data for the cost of maintenance on its machinery for the last four months:

Month	*Maintenance Cost*	*Machine Hours*
September	$26,020	21,000
October	$24,600	18,500
November	$22,300	15,000
December	$25,100	19,000

Assume that the relevant range includes all of the activity levels mentioned in this problem

76. Assuming Cosco Company uses the high-low method of analysis, the fixed cost of maintenance would be estimated to be:
    A) $14,500
    B) $ 5,020
    C) $13,000
    D) $12,320

    Answer: C Level: Medium LO: 1,3

77. Assuming Cosco Company uses the high-low method of analysis, if machine hours are budgeted to be 20,000 hours then the budgeted total maintenance cost would be expected to be:
    A) $25,400
    B) $25,560
    C) $23,700
    D) $24,720

    Answer: A Level: Medium LO: 1,3

Use the following to answer questions 78-80:

The following production and average cost data for two levels of monthly production volume have been supplied by a company that produces a single product:

Production volume	1,000 units	3,000 units
Direct materials	$13.20 per unit	$13.20 per unit
Direct labor.....	$14.50 per unit	$14.50 per unit
Manufacturing overhead	$65.40 per unit	$29.40 per unit

78. The best estimate of the total monthly fixed manufacturing cost is:
    A) $65,400
    B) $88,200
    C) $93,100
    D) $54,000

    Answer: D Level: Hard LO: 1,3

79. The best estimate of the total variable manufacturing cost per unit is:
    A) $39.10
    B) $27.70
    C) $11.40
    D) $13.20

    Answer: A Level: Hard LO: 1,3

80. The best estimate of the total cost to manufacture 1,200 units is closest to:
    A) $68,520
    B) $100,920
    C) $111,720
    D) $90,120

    Answer: B Level: Hard LO: 1,3

Use the following to answer questions 81-83:

The following production and average cost data for two levels of monthly production volume have been supplied by a company that produces a single product:

Production volume	2,000 units	4,000 units
Direct materials	$88.40 per unit	$88.40 per unit
Direct labor.....	$20.60 per unit	$20.60 per unit
Manufacturing overhead	$86.90 per unit	$55.30 per unit

81. The best estimate of the total monthly fixed manufacturing cost is:
    A) $221,200
    B) $391,800
    C) $173,800
    D) $126,400

    Answer: D Level: Hard LO: 1,3

82. The best estimate of the total variable manufacturing cost per unit is:
    A) $132.70
    B) $88.40
    C) $23.70
    D) $109.00

    Answer: A Level: Hard LO: 1,3

83. The best estimate of the total cost to manufacture 2,200 units is closest to:
    A) $396,220
    B) $430,980
    C) $361,460
    D) $418,340

    Answer: D Level: Hard LO: 1,3

Use the following to answer questions 84-86:

Baker Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	6,000 units	7,000 units
Direct materials	$194,400	$226,800
Direct labor.....	$74,400	$86,800
Manufacturing overhead	$758,400	$779,800

84. The best estimate of the total monthly fixed manufacturing cost is:
    A) $1,027,200
    B) $1,060,300
    C) $1,093,400
    D) $630,000

    Answer: D Level: Medium LO: 1,3

85. The best estimate of the total variable manufacturing cost per unit is:
    A) $32.40
    B) $44.80
    C) $66.20
    D) $21.40

    Answer: C Level: Medium LO: 1,3

86. The best estimate of the total cost to manufacture 6,300 units is closest to:
    A) $984,060
    B) $1,031,310
    C) $1,047,060
    D) $1,078,560

    Answer: C Level: Medium LO: 1,3

Use the following to answer questions 87-89:

Babson Corporation has provided the following production and total cost data for two levels of monthly production volume. The company produces a single product.

Production volume	5,000 units	6,000 units
Direct materials	$103,500	$124,200
Direct labor.....	$282,500	$339,000
Manufacturing overhead	$667,000	$679,800

87. The best estimate of the total monthly fixed manufacturing cost is:
    A) $1,098,000
    B) $1,053,000
    C) $1,143,000
    D) $603,000

    Answer: D Level: Medium LO: 1,3

88. The best estimate of the total variable manufacturing cost per unit is:
    A) $90.00
    B) $77.20
    C) $12.80
    D) $20.70

    Answer: A Level: Medium LO: 1,3

89. The best estimate of the total cost to manufacture 5,300 units is closest to:
    A) $1,116,180
    B) $1,062,915
    C) $1,080,000
    D) $1,009,650

    Answer: C Level: Medium LO: 1,3

Use the following to answer questions 90-93:

Solo Company is a small merchandising firm. During the next month, the company expects to sell 500 units. The company has the following revenue and cost structure:

Selling price per unit	$60
Cost per unit	$15
Sales commission	10% of sales
Advertising expense	$5,000 per month
Administrative expense	$3,000 per month plus 20% of sales

90. The expected gross margin next month is:
    A) $ 5,500
    B) $22,500
    C) $13,500
    D) $ 7,500

    Answer: B Level: Medium LO: 4

91. The expected contribution margin next month is:
    A) $13,500
    B) $ 5,500
    C) $ 7,300
    D) $22,500

    Answer: A Level: Medium LO: 4

92. The expected total administrative expense next month is:
    A) $3,000
    B) $4,000
    C) $9,000
    D) $6,000

    Answer: C Level: Easy LO: 1

93. The expected net operating income is:
    A) $22,500
    B) $ 5,500
    C) $ 7,500
    D) $13,500

    Answer: B Level: Medium LO: 1

Use the following to answer questions 94-97:

The University Store, Inc. is the major bookseller for four nearby colleges An income statement for the first quarter of the year is presented below:

University Store, Inc.
Income Statement
For the Quarter Ended March 31

Sales		$800,000
Cost of goods sold		560,000
Gross margin		240,000
Less operating expenses:		
Selling	$100,000	
Administrative	110,000	210,000
Net operating income		$ 30,000

On average, a book sells for $40.00. Variable selling expenses are $3.00 per book; the remaining selling expenses are fixed. The variable administrative expenses are 5% of sales; the remainder of the administrative expenses are fixed.

94. The contribution margin for the University Store for the first quarter is:
A) $660,000
B) $700,000
C) $180,000
D) $140,000

Answer: D Level: Medium LO: 4

95. The net operating income computed using the contribution approach for the first quarter is:
A) $ 30,000
B) $180,000
C) $140,000
D) $0

Answer: A Level: Easy LO: 4

96. The cost formula for operating expenses with "X" equal to the number of books sold is:
    A) Y = $105,000 + $3X
    B) Y = $105,000 + $5X
    C) Y = $110,000 + $5X
    D) Y = $110,000 + $33X

    Answer: C Level: Medium LO: 1

97. If 25,000 books are sold during the second quarter and this activity is within the relevant range, the company's expected contribution margin would be:
    A) $875,000
    B) $300,000
    C) $175,000
    D) $ 65,000

    Answer: C Level: Medium LO: 1,4

Use the following to answer questions 98-101:

Dizzy Amusement Park is open from 8:00 am till midnight every day of the year. Dizzy charges its patrons a daily entrance fee of $30 per person which gives them unlimited access to all of the park's 35 rides.

98. Dizzy gives out a free T-shirt to every 100th customer entering the park. The cost of this T-shirt would best be described as a:
    A) fixed cost
    B) mixed cost
    C) step-variable cost
    D) true variable cost

    Answer: C Level: Medium LO: 1

99. For liability insurance, Dizzy pays a set monthly fee plus a small additional amount for every patron entering the park. The cost of liability insurance would best be described as a:
    A) fixed cost
    B) mixed cost
    C) step-variable cost
    D) true variable cost

    Answer: B Level: Easy LO: 1

100. Dizzy employees a certified operator for each of its 35 rides. Each operator is paid $20 per hour. The cost of the certified operators would best be described as a:
A) fixed cost
B) mixed cost
C) step-variable cost
D) true variable cost

Answer: A Level: Easy LO: 1

101. Dizzy donates $2 of every entrance fee to a local homeless shelter. This charitable contribution would best be described as a:
A) fixed cost
B) mixed cost
C) step-variable cost
D) true variable cost

Answer: D Level: Easy LO: 1

Use the following to answer questions 102-106:

Donner Company would like to estimate the variable and fixed components of its maintenance costs and has compiled the following data for the last five months of operations.

	Labor Hours	*Maintenance Cost*
January	160	$617
February	130	$553
March	180	$596
April	190	$623
May	110	$532

102. Using the high-low method of analysis, the estimated variable cost per labor hour for maintenance is closest to:
A) $0.83
B) $1.84
C) $1.30
D) $1.14

Answer: D Level: Medium LO: 3

103. Using the high-low method of analysis, the estimated total fixed cost per month for maintenance is closest to:
A) $440
B) $407
C) $470
D) $0

Answer: B Level: Medium LO: 3

104. Using the least-squares regression method, the estimated variable cost per labor hour for maintenance is closest to:
A) $1.88
B) $1.52
C) $1.09
D) $1.96

Answer: C Level: Hard LO: 5 Appendix: 5

105. Using the least-squares regression method, the estimated total fixed cost per month for maintenance is closest to:
A) $470
B) $416
C) $400
D) $378

Answer: B Level: Hard LO: 5 Appendix: 5

106. Using the least-squares regression equation, the total maintenance cost for March is:
A) above the regression line
B) on the regression line
C) below the regression line
D) outside the relevant range

Answer: C Level: Hard LO: 5 Appendix: 5

Use the following to answer questions 107-108:

Golden Dragon Restaurant would like to estimate the variable and fixed components of its utilities costs and has compiled the following data for the last five months of operations.

Month	*Meals served*	*Utilities costs*
December	550	$401.00
January	300	$360.00
February	250	$347.50
March	400	$385.50
April	600	$414.00

107. Using the high-low method of analysis, the estimated variable utilities cost per meal served is:
A) $0.22
B) $0.73
C) $0.69
D) $0.19

Answer: D Level: Medium LO: 3

108. Using the high-low method of analysis, the estimated monthly fixed component of utility cost is:
A) $ 66.50
B) $300.00
C) $303.00
D) $331.00

Answer: B Level: Medium LO: 3

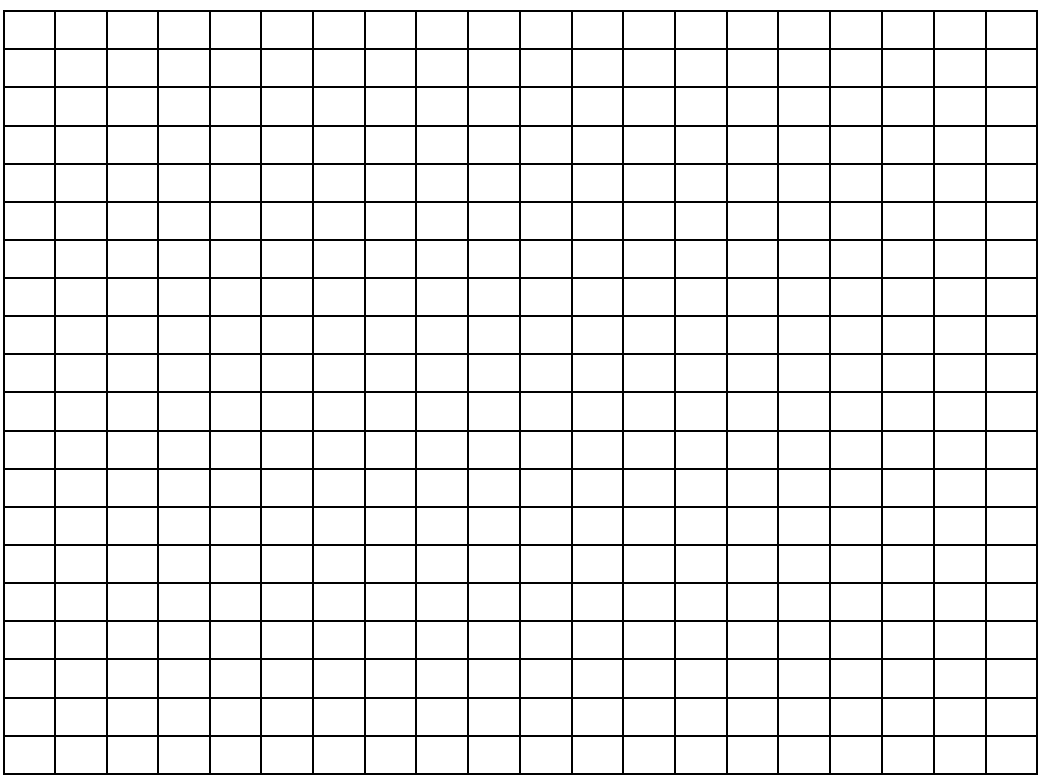
Essay Questions

109. The owner of the Diamondhead restaurant in Honolulu would like to determine the fixed and variable components of the restaurant's utility expenses. The owner believes that the variable component of the utilities cost is driven by the number of meals served.

	Meals served	*Utilities cost*
January	3,000	$450
February	4,000	$480
March	3,500	$490
April	4,500	$530
May	5,000	$570
June	6,000	$620
July	5,500	$560

Required:

a. Plot the data on the graph below.



b. Using the quick-and-dirty scattergraph method, derive a cost formula for utilities cost.
c. c Use your cost formula to predict the utilities cost if 5,200 meals are served.

Level: Medium LO: 1,2

Answer:
There is not a single correct answer to these questions. Students' answers to these questions will vary and must be carefully graded. We recommend that you evaluate the students' techniques rather than the numerical accuracy of their answers.

a. Check that students followed the steps for plotting data.
b. Answers will differ based upon how the line is fitted to the data. The answer should be something like Y = $300 + $0.05X. (The least-squares regression line is Y = $291 + $.053X.)
c. Answers will differ based upon the cost formula that the student derived in (2) above. With our cost formula, the predicted cost is $560 = $300 + $0.05 × 5,200. (Using least-squares regression, the cost estimate would be $567.)

110. Arlo's T-shirt Shop only has three costs: T-shirt cost, rent cost on the shop, and utilities cost. Arlo's sells the T-shirt for $14.50 each. Management has prepared the following estimated cost information for next month:

	At 8,000 T-shirts	*At 10,000 T-shirts*
T-shirt cost.....	$48,000	$60,000
Rent cost.....	$3,600	$3,600
Utilities cost.....	$6,800	$8,300

Assume that all of the activity levels mentioned in this problem are within the relevant range.

Required:
a. Calculate what Arlo's should expect for total variable cost if 9,000 T-shirts are sold next month.
b. Prepare Arlo's contribution approach income statement for a monthly sales volume level of 10,000 T-shirts.

Level: Hard LO: 1,3,4

Answer:

a.

T-shirt {[($60,000 - $48,000)/2,000] × 9,000}	$54,000
Utilities cost {[($8,300 - $6,800)/2,000] × 9,000}	$6,750
Total variable cost	$60,750

b.

Arlo's T-Shirt Shop
Contribution Approach Income Statement
Monthly Sales Volume of 10,000 T-Shirts

Sales ($14.50 × 10,000)		$145,000
Less variable expenses:		
T-shirt cost	$60,000	
Utilities cost ($0.75 × 10,000)	7,500	67,500
Contribution margin		77,500
Less fixed expenses		
Rent cost	3,600	
Utilities cost ($8,300 - $7,500)	800	4,400
Net operating income		$ 73,100

111. Rapid Delivery, Inc., operates a parcel delivery service across the nation. The company keeps detailed records relating to operating costs of trucks, and has found that if a truck is driven 150,000 miles per year the average operating cost is 10 cents per mile. This cost increases to 11 cents per mile if a truck is driven only 100,000 miles per year.

Assume that all of the activity levels mentioned in this problem are within the relevant range.

Required:

a. Using the high-low method, derive the cost formula for truck operating costs.
b. Using the cost formula you derived above, what total cost would you expect the company to incur in connection with the truck if it is driven 130,000 miles in a year?

Level: Easy LO: 1,3

Answer:

a.

	Miles	*Cost*	
High level	150,000	(150,000 miles × $.10 =)	$15,000
Low level	100,000	(100,000 miles × $.11 =)	11,000
Change	50,000		$ 4,000

$4,000 ÷ 50,000 miles = $0.08 per mile variable cost

Total cost at high level	$15,000
Less variable element: 150,000 miles × $0.08	12,000
Fixed element	$ 3,000

Cost formula: $3,000 plus $0.08 per mile or
Y = $3,000 + $0.08X

b.

Variable cost: 130,000 miles × $0.08 per mile	$10,400
Fixed cost	3,000
Total cost	$13,400

112. Butler Sales Company is a distributor that has an exclusive franchise to sell a particular product made by another company. Butler Sales Company's income statements for the last two years are given below:

	This Year	*Last Year*
Units sold	200,000	160,000
Sales revenue	$1,000,000	$800,000
Less cost of goods sold	700,000	560,000
Gross margin	300,000	240,000
Less operating expenses	210,000	198,000
Net operating income	$ 90,000	$ 42,000

Operating expenses are a mixture of fixed costs and variable and mixed costs that vary with respect to the number of units sold.

Required:

a. Estimate the company's variable operating expenses per unit, and its total fixed operating expenses per year.
b. Compute the company's contribution margin for this year.

Level: Medium LO: 3,4

Answer:

a.

	Cost	*Activity*
High level of activity	$210,000	200,000
Low level of activity	198,000	160,000
Change observed	$ 12,000	40,000

$12,000 ÷ 40,000 units = $0.30 per unit variable cost

Total cost at the high level	$210,000
Less variable element (200,000 units × $0.30 per unit)	60,000
Fixed element	$150,000

b.

Sales revenue		$1,000,000
Less variable expenses:		
Cost of goods sold	$700,000	
Operating expenses (above)	60,000	760,000
Contribution margin		$ 240,000

113. SomethingNew is a small one-person company that provides elaborate and imaginative wedding cakes to order for very large wedding receptions. The owner of the company would like to understand the cost structure of the company and has compiled the following records of activity and costs incurred. The owner believes that the number of weddings catered is the best measure of activity.

Month	*Weddings*	*Costs Incurred*
January	3	$3,800
February	2	$3,600
March	6	$4,000
April	9	$4,300
May	12	$4,500
June	20	$5,200

Required:

a. Using the high-low method, estimate the variable cost per wedding and the total fixed cost per month. (Round off the variable cost per wedding to the nearest cent and the total fixed cost to the nearest dollar.)
b. Using the least-squares regression method, estimate the variable cost per wedding and the total fixed cost per month. (Round off the variable cost per wedding to the nearest cent and the total fixed cost to the nearest dollar.)

Level: Hard LO: 3,5 Appendix: 5

Answer:

a. High-Low Method

	Activity	*Costs*
June (high activity level)	20	$5,200
February (low activity level)	2	3,600
Change observed	18	$1,600

Variable cost = Change in cost ÷ Change in activity
= $1,600 ÷ 18 weddings
= $88.89 per wedding

Fixed cost element = Total cost - Variable cost element
= $5,200 - ($88.89 per wedding × 20 weddings)
= $3,422

Cost formula: $3,422 fixed cost per month plus $88.89 per wedding, or
Y = $3,422 + $88.89X.

b. Least-Squares Regression Method
Using statistical software or hand calculation, the cost formula is approximately $3,490 per month, plus $85.82 per wedding, or
Y = $3,490 + $85.82X

114. The management of Buff Sports Stadium believes that the number of sporting events each month is a measure of activity for total clean up cost. Shown below are event figures and total clean up costs for the past four months:

	Number of Sporting Events	*Total Clean-up Cost*
July	28	$30,900
August	34	$34,200
September	16	$20,700
October	22	$28,200

Required:
a. Estimate Buff's cost formula for monthly clean up cost using the high-low method.
b. Estimate Buff's cost formula for monthly clean up cost using the least-squares regression method.

Level: Hard LO: 3,5 Appendix: 5

Answer:
a. High-Low: Y = $8,700 + $750X
($34,200 - $20,700)/(34 - 16) = $750 per event; $750 × 34 = $25,500;
$34,200 - $25,500 = $8,700
b. Least Squares: Y = $10,500 + $720X

115. CapeAir flies a medium-sized passenger jet on a route between Washington, D.C., and Cape Cod. The manager of the airline would like to estimate the relationship between the plane's payload (i.e., total weight of passengers and cargo) and total fuel costs. On five recent flights, the payload varied between 22 tons and 35 tons.

	Payload (tons)	*Fuel Cost*
Flight 1	35	$780
Flight 2	26	$720
Flight 3	33	$765
Flight 4	28	$735
Flight 5	22	$700

Required:
Using the least-squares regression method, estimate the variable cost per ton and the fixed cost per flight. (Round off the variable cost per ton to the nearest cent and the fixed cost per flight to the nearest dollar.)

Level: Hard LO: 5 Appendix: 5

Answer:
Using statistical software or hand calculation, the cost formula is about $562 per flight plus $6.18 per ton.

116. Below are cost and activity data for a particular cost over the last four periods. Your boss has asked you to analyze this cost so that management will have a better understanding of how this cost changes in response to changes in activity.

	Activity	*Cost*
Period 1	47	$474
Period 2	44	$460
Period 3	42	$450
Period 4	40	$440

Required:
Using the least-squares regression method, estimate the cost formula for this cost.

Level: Medium LO: 5 Appendix: 5

Answer:
Using statistical software or hand calculation, the cost formula is approximately Y = $246 + $4.86X.

117. Below are cost and activity data for a particular cost over the last four periods. Your boss has asked you to analyze this cost so that management will have a better understanding of how this cost changes in response to changes in activity.

	Activity	*Cost*
Period 1	46	$483
Period 2	42	$465
Period 3	45	$477
Period 4	49	$500

Required:
Using the least-squares regression method, estimate the cost formula for this cost.

Level: Medium LO: 5 Appendix: 5

Answer:
Using statistical software or hand calculation, the cost formula is approximately Y = $253 + $5.02X.

Chapter 6 Cost-Volume-Profit Relationships

True/False Questions

1. To estimate what the profit will be at various levels of activity, a manager can simply take the number of units to be sold over the break-even point and multiply that number by the unit contribution margin.

   Answer: True Level: Medium LO: 1

2. Incremental analysis is generally the simplest and most direct approach to decision making.

   Answer: True Level: Easy LO: 1

3. To facilitate decision-making, fixed expenses should be expressed on a per-unit basis.

   Answer: False Level: Medium LO: 1

4. One assumption in CVP analysis is that inventories do not change.

   Answer: True Level: Easy LO: 1

5. On a CVP graph for a profitable company, the total expense line will be steeper than the total revenue line.

   Answer: False Level: Medium LO: 2

6. If sales volume increases, and all other factors remain unchanged, the contribution margin ratio will decrease.

   Answer: False Level: Medium LO: 3

7. The break-even point for a capital intensive, automated company will tend to be higher than for a less capital intensive company while the margin of safety will tend to be lower.

   Answer: True Level: Medium LO: 5,7

8. An increase in the number of units sold will decrease a company's break-even point.

   Answer: False Level: Medium LO: 5

9. Assuming that the unit contribution margin is positive, a 10% decrease in selling price will increase the break-even point in terms of unit sales more than will a 10% increase in the variable expense.

   Answer: True Level: Hard LO: 5

10. The break-even point is the point where total contribution margin equals total variable expenses.

    Answer: False Level: Medium LO: 5

11. The break-even point can usually be determined by simply adding together all of the expenses from the income statement.

    Answer: False Level: Medium LO: 5

12. Two companies with the same margin of safety in dollars will also have the same total contribution margin.

    Answer: False Level: Medium LO: 7

13. If a company has high operating leverage, then profits will be very sensitive to changes in sales.

    Answer: True Level: Easy LO: 8

14. Operating leverage will decrease as the company's margin of safety increases.

    Answer: True Level: Hard LO: 7,8

15. The overall contribution margin ratio for a company producing three products may be obtained by adding the contribution margin ratios for the three products and dividing the total by three.

    Answer: False Level: Hard LO: 9

Multiple Choice Questions

16. Which of the following is correct? The break-even point occurs on the CVP graph where:
    A) total profit equals total expenses.
    B) total profit equals total fixed expenses.
    C) total contribution margin equals total fixed expenses.
    D) total variable expenses equal total contribution margin.

    Answer: C Level: Medium LO: 1,2

17. If a company decreases its total fixed expenses while increasing the variable expense per unit, the total expense line relative to its previous position on a cost-volume-profit graph will:
    A) shift upward and have a steeper slope.
    B) shift upward and have a flatter slope.
    C) shift downward and have a steeper slope.
    D) shift downward and have a flatter slope.

    Answer: C Level: Medium LO: 2

18. East Company manufactures and sells a single product with a positive contribution margin. If the selling price and the variable expense per unit both increase 5% and fixed expenses do not change, what is the effect on the contribution margin per unit and the contribution margin ratio?

	Contribution margin per unit	*Contribution margin ratio*
A)	No change	No change
B)	Increase	Increase
C)	Increase	No change
D)	Increase	Decrease

    Answer: C Level: Medium LO: 3,4 Source: CMA, adapted

19. Mossfeet Shoe Company is a single product firm. Mossfeet is predicting that a price increase next year will not cause unit sales to decrease. What effect would this price increase have on the following items for next year?

	Contribution Margin Ratio	*Break-even Point*
A)	Increase	Decrease
B)	Decrease	Decrease
C)	Increase	No effect
D)	Decrease	No effect

Answer: A Level: Medium LO: 3,5

20. The contribution margin ratio is equal to:
A) Total manufacturing expenses/Sales.
B) (Sales - Variable expenses)/Sales.
C) 1 - (Gross Margin/Sales).
D) 1 - (Contribution Margin/Sales).

Answer: B Level: Medium LO: 3

21. The contribution margin ratio always increases when the:
A) break-even point increases.
B) break-even point decreases.
C) variable expenses as a percentage of net sales decrease.
D) variable expenses as a percentage of net sales increase.

Answer: C Level: Hard LO: 3 Source: CPA, adapted

22. In the middle of the year, the price of Lake Corporation's major raw material increased by 8%. How would this increase affect the company's break-even point and margin of safety?

	Break-even point	*Margin of safety*
A)	Increase	Increase
B)	Increase	Decrease
C)	Decrease	Decrease
D)	Decrease	Increase

Answer: B Level: Easy LO: 5,7

23. A $2.00 increase in a product's variable expense per unit accompanied by a $2.00 increase in its selling price per unit will:
    A) decrease the degree of operating leverage.
    B) decrease the contribution margin.
    C) have no effect on the break-even volume.
    D) have no effect on the contribution margin ratio.

    Answer: C Level: Hard LO: 5,8

24. The break-even point in unit sales is found by dividing total fixed expenses by:
    A) the contribution margin ratio.
    B) the variable expenses per unit.
    C) the sales price per unit.
    D) the contribution margin per unit.

    Answer: D Level: Easy LO: 5

25. Which of the following would not affect the break-even point?
    A) number of units sold
    B) variable expense per unit
    C) total fixed expenses
    D) selling price per unit

    Answer: A Level: Medium LO: 5 Source: CMA, adapted

26. If a company increases its selling price by $2 per unit due to an increase in its variable labor cost of $2 per unit, the break-even point in units will:
    A) decrease.
    B) increase.
    C) not change.
    D) change but direction cannot be determined.

    Answer: C Level: Medium LO: 5

27. To obtain the dollar sales volume necessary to attain a given target profit, which of the following formulas should be used?
    A) (Fixed expenses + Target net profit)/Total contribution margin
    B) (Fixed expenses + Target net profit)/Contribution margin ratio
    C) Fixed expenses/Contribution margin per unit
    D) Target net profit/Contribution margin ratio

    Answer: B Level: Easy LO: 6

28. Salinas Corporation has a degree of operating leverage of 8. This means that a 1% change in sales dollars at Salinas will generate an 8% change in:
    A) variable expenses.
    B) fixed expenses.
    C) contribution margin.
    D) net operating income.

    Answer: D Level: Medium LO: 8

29. In calculating the break-even point for a multi-product company, which of the following assumptions are commonly made?

    I. Selling prices are constant.
    II. Variable expenses are constant per unit.
    III. The sales mix is constant.

    A) I and II
    B) I and III
    C) II and III
    D) I, II, and III

    Answer: D Level: Easy LO: 9

30. The following information relates to the break-even point at Pezzo Corporation:

Sales dollars.....	$120,000
Total fixed expenses.....	$30,000

    If Pezzo wants to generate net operating income of $12,000, what will its sales dollars have to be?
    A) $132,000
    B) $136,000
    C) $168,000
    D) $176,000

    Answer: C Level: Hard LO: 1,3,5,6

31. The following information relates to Snowbird Corporation:

Sales at the break-even point.....	$312,500
Total fixed expenses.....	$250,000
Net operating income	$150,000

What is Snowbird's margin of safety?
A) $62,500
B) $187,500
C) $100,000
D) $212,500

Answer: B Level: Hard LO: 1,3,5,7

32. The "Dog Hut" hot dog stand expects the following operating results for next year:

Sales.....	$280,000
Net operating income	$21,000
Contribution margin ratio.....	70%

What is Dog Hut's break-even point next year in sales dollars?
A) $120,000
B) $181,300
C) $196,000
D) $250,000

Answer: D Level: Hard LO: 1,3,5

33. The following information relates to Zinc Corporation for last year:

Sales.....	$500,000
Net operating income	$25,000
Degree of operating leverage	5

Sales at Zinc are expected to be $600,000 next year. Assuming no change in cost structure, this means that net operating income for next year should be:
A) $30,000
B) $45,000
C) $50,000
D) $125,000

Answer: C Level: Hard LO: 1,3,8

34. The following information pertains to Nova Co.'s cost-volume-profit relationships:

Breakeven point in units sold	1,000
Variable expenses per unit	$500
Total fixed expenses	$150,000

How much will be contributed to net operating income by the 1,001st unit sold?
A) $650
B) $500
C) $150
D) $0

Answer: C Level: Medium LO: 1,5

35. Barnes Corporation expected to sell 150,000 games during the month of November. The following budgeted data are based on that level of sales:

Revenue (150,000 games)	$2,400,000
Variable expenses	1,425,000
Fixed manufacturing overhead expenses	250,000
Fixed selling & administrative expenses	500,000
Net operating income	225,000

Barnes' actual sales during November were 180,000 games. What should the actual net operating income during November have been?
A) $450,000
B) $270,000
C) $420,000
D) $510,000

Answer: C Level: Medium LO: 1 Source: CMA, adapted

36. Carver Company produces a product which sells for $40. Variable manufacturing costs are $18 per unit. Fixed manufacturing costs are $5 per unit based on the current level of activity, and fixed selling and administrative costs are $4 per unit. A selling commission of 15% of the selling price is paid on each unit sold. The contribution margin per unit is:
A) $7
B) $17
C) $22
D) $16

Answer: D Level: Easy LO: 1

37. Tice Company is a medium-sized manufacturer of lamps. During the year a new line called "Horolin" was made available to Tice's customers. The break-even point for sales of Horolin is $200,000 with a contribution margin of 40%. Assuming that the profit for the Horolin line during the year amounted to $100,000, total sales during the year would have amounted to:
A) $300,000
B) $420,000
C) $450,000
D) $475,000

Answer: C Level: Hard LO: 3,5,6 Source: CPA, adapted

38. Black Company's sales are $600,000, its fixed expenses are $150,000, and its variable expenses are 60% of sales. Based on this information, the margin of safety is:
A) $90,000
B) $190,000
C) $225,000
D) $240,000

Answer: C Level: Medium LO: 3,5,7

39. Variable expenses for Alpha Company are 40% of sales. What are sales at the break-even point, assuming that fixed expenses total $150,000 per year:
A) $250,000
B) $375,000
C) $600,000
D) $150,000

Answer: A Level: Easy LO: 3,5

40. Minist Company sells a single product at a selling price of $15.00 per unit. Last year, the company's sales revenue was $225,000 and its net operating income was $18,000. If fixed expenses totaled $72,000 for the year, the break-even point in unit sales was
A) 15,000
B) 9,900
C) 14,100
D) 12,000

Answer: D Level: Hard LO: 3,5

41. Winger Corp. sells a product for $5 per unit. The fixed expenses are $210,000 and the unit variable expenses are 60% of the selling price. What sales would be necessary in order for Winger Corp. to realize a profit of 10% of sales?
    A) $700,000
    B) $525,000
    C) $472,500
    D) $420,000

    Answer: A Level: Hard LO: 3,6 Source: CPA, adapted

42. Sales in East Company declined from $100,000 per year to $80,000 per year, while net operating income declined by 300 percent. Given these data, the company must have had an operating leverage of:
    A) 15
    B) 2.7
    C) 30
    D) 12

    Answer: A Level: Hard LO: 3,8

43. Darth Company sells three products. Sales and contribution margin ratios for the three products follow:

	Product		
	X	*Y*	*Z*
Sales in dollars	$20,000	$40,000	$100,000
contribution margin ratio	45%	40%	15%

    Given these data, the contribution margin ratio for the company as a whole would be:
    A) 25%
    B) 75%
    C) 33.3%
    D) it is impossible to determine from the given data

    Answer: A Level: Medium LO: 3,9

44. Sunnripe Company manufactures and sells two types of beach towels, standard and deluxe. Sunnripe expects the following operating results next year for each type of towel:

	Standard	*Deluxe*
Sales	$450,000	$50,000
Variable expenses (total)	$360,000	$20,000

Sunnripe expects to have a total of $57,600 in fixed expenses next year. What is Sunnripe's break-even point next year in sales dollars?
A) $72,000
B) $144,000
C) $192,000
D) $240,000

Answer: D Level: Hard LO: 3,9

45. Cindy, Inc. sells a product for $10 per unit. The variable expenses are $6 per unit, and the fixed expenses total $35,000 per period. By how much will net operating income change if sales are expected to increase by $40,000?
A) $16,000 increase
B) $5,000 increase
C) $24,000 increase
D) $11,000 decrease

Answer: A Level: Medium LO: 3

46. Birney Company has prepared the following budget data:

Sales	150,000 units
Selling price	$25 per unit
Variable expenses	$15 per unit
Fixed manufacturing expenses	$800,000
Fixed selling and admin. expenses	$700,000

An advertising agency claims that an aggressive advertising campaign would enable the company to increase its unit sales by 20%. What is the maximum amount that the company can pay for advertising and obtain a net operating income of $200,000?
A) $100,000
B) $200,000
C) $300,000
D) $550,000

Answer: A Level: Hard LO: 4,6 Source: CPA, adapted

47. During last year, Thor Lab supplied hospitals with a comprehensive diagnostic kit for $120. At a volume of 80,000 kits, Thor had fixed expenses of $1,000,000 and net operating income of $200,000. Because of an adverse legal decision, Thor's liability insurance expenses this year will be $1,200,000 more than they were last year. Assuming that the volume and other costs are unchanged, what should be the sales price this year if Thor is to make the same $200,000 net operating income?
A) $120
B) $135
C) $150
D) $240

Answer: B Level: Medium LO: 4,6 Source: CPA, adapted

48. How much will a company's net operating income change if it undertakes an advertising campaign given the following data:

Cost of advertising campaign	$25,000
Variable expense as a percentage of sales	42%
Increase in sales	$60,000

A) $200 increase
B) $25,200 increase
C) $15,000 increase
D) $9,800 increase

Answer: D Level: Hard LO: 4

49. Sun Company's tentative budget for next year is as follows:

Sales	$600,000
Variable expenses	360,000
Fixed expenses:	
Manufacturing	90,000
Selling and administrative	110,000
Net operating income	$40,000

Mr. Johnston, the marketing manager, has proposed an aggressive advertising campaign costing an additional $50,000 that he predicts will result in a 30% unit sales increase. Assuming that Johnston's proposal is incorporated into the budget, what should be the increase in the budgeted net operating income for next year?
A) $12,000
B) $22,000
C) $72,000
D) $130,000

Answer: B Level: Hard LO: 4 Source: CPA, adapted

50. Last year, variable expenses were 60% of total sales and fixed expenses were 10% of total sales. If the company increases its selling prices by 10%, but if fixed expenses, variable costs per unit, and unit sales remain unchanged, the effect of the increase in selling price on the company's total contribution margin would be:
A) a decrease of 2%
B) an increase of 5%
C) an increase of 10%
D) an increase of 25%

Answer: D Level: Hard LO: 4 Source: CIMA, adapted

51. Moruzzi Corporation is a single-product company that expects the following operating results for next year:

Sales	$320,000
Contribution margin per unit	$0.20
Contribution margin ratio	25%
Degree of operating leverage	8

How many units would Moruzzi have to sell next year to break-even?
A) 50,000
B) 200,000
C) 280,000
D) 350,000

Answer: D Level: Hard LO: 5

52. Mason Company's selling price was $20.00 per unit. Fixed expenses totaled $54,000, variable expenses were $14.00 per unit, and the company reported a profit of $9,000 for the year. The break-even point for Mason Company is:
A) 10,500 units
B) 4,500 units
C) 8,500 units
D) 9,000 units

Answer: D Level: Medium LO: 5

53. Given the following data:

Selling price per unit	$2.00
Variable production cost per unit	$0.30
Fixed production cost	$3,000
Sales commission per unit	$0.20
Fixed selling expenses	$1,500

The break-even point in dollars is:
A) $6,000
B) $4,500
C) $2,647
D) $4,000

Answer: A Level: Easy LO: 5

54. Hollis Company sells a single product for $20 per unit. The company's fixed expenses total $240,000 per year, and variable expenses are $12 per unit of product. The company's break-even point is:
A) $400,000
B) $600,000
C) 20,000 units
D) 12,000 units

Answer: B Level: Easy LO: 5

55. Darwin, Inc., sells a particular textbook for $20. Variable expenses are $14 per book. At the current volume of 50,000 books sold per year the company is just breaking even. Given these data, the annual fixed expenses associated with the textbook total:
A) $300,000
B) $1,000,000
C) $1,300,000
D) $700,000

Answer: A Level: Medium LO: 5

56. Singapore Candy Cane Company is a single product firm with the following cost structure for next year:

Selling price per unit	$1.20
Variable expenses per unit	$0.72
Total fixed expenses for the year	$64,800

What is the company's break-even point next year in sales dollars?
A) $90,000
B) $108,000
C) $135,000
D) $162,000

Answer: D Level: Medium LO: 5

57. Garcia Veterinary Clinic expects the following operating results next year:

Sales (total)	$600,000
Variable expenses (total)	$120,000
Fixed expenses (total)	$300,000

What is Garcia's break-even point next year in sales dollars?
A) $240,000
B) $375,000
C) $400,000
D) $420,000

Answer: B Level: Medium LO: 5

58. Frank Company manufacturers a single product that has a selling price of $20.00 per unit. Fixed expenses total $45,000 per year, and the company must sell 5,000 units to break even. If the company has a target profit of $13,500, sales in units must be:
A) 6,000
B) 5,750
C) 6,500
D) 7,925

Answer: C Level: Hard LO: 6

59. Spencer Company expects to sell 60,000 units next year. Variable production costs are $4 per unit, and variable selling costs are 10% of the selling price. Fixed expenses are $115,000 per year, and the company has set a target profit of $50,000. Based on this information, the unit selling price should be:
A) $7.00
B) $10.75
C) $7.50
D) $6.75

Answer: C Level: Hard LO: 6

60. Company X sold 25,000 units of product last year. The contribution margin per unit was $2, and fixed expenses totaled $40,000 for the year. This year fixed expenses are expected to increase to $45,000, but the contribution margin per unit will remain unchanged at $2. How many units must be sold this year to earn the same net operating income as was earned last year:
    A) 22,500
    B) 27,500
    C) 35,000
    D) 2,500

    Answer: B Level: Medium LO: 6

61. A product sells for $10 per unit and has variable expenses of $6 per unit. Fixed expenses total $45,000 per month. How many units of the product must be sold each month to yield a monthly profit of $15,000?
    A) 6,000 units
    B) 3,750 units
    C) 15,000 units
    D) 10,000 units

    Answer: C Level: Easy LO: 6

62. The Breiden Company sells rodaks for $6.00 per unit. Fixed expenses total $37,500 per month and variable expenses are $2.00 per unit. How many rodaks must be sold each month to realize a profit before income taxes of 15% of sales (to the nearest whole unit):
    A) 9,375 units
    B) 11,029 units
    C) 12,097 units
    D) 9,740 units

    Answer: C Level: Hard LO: 6 Source: CMA, adapted

63. Chibu Corporation is a single product firm with the following cost formula for all of its costs for next year:

    Y = $225,000 + $30X

    Chibu sells its product for $120 per unit. What would Chibu's total sales dollars have to be next year in order to generate $270,000 of net operating income?
    A) $618,750
    B) $660,000
    C) $1,080,000
    D) $1,980,000

    Answer: B Level: Hard LO: 6

64. Gamma Company has sales of $120,000, a contribution margin of $48,000, and a net operating income of $12,000. The company's degree of operating leverage is:
    A) 2.5
    B) 4.0
    C) 10.0
    D) 4.8

    Answer: B Level: Easy LO: 8

65. Alpha Company reported the following data for its most recent year: sales, $500,000; variable expenses, $300,000; and fixed expenses, $150,000. The company's degree of operating leverage is:
    A) 10
    B) 2
    C) 4
    D) 2.5

    Answer: C Level: Medium LO: 8

66. Mason Enterprises has prepared the following budget for the month of July:

	Selling price per unit	*Variable cost per unit*	*Unit sales*
Product A.....	$10.00	$4.00	15,000
Product B.....	$15.00	$8.00	20,000
Product C.....	$18.00	$9.00	5,000

Assuming that total fixed expenses will be $150,000 and the sales mix remains constant, the break-even point would be closest to:
A) $276,008
B) $235,292
C) $294,545
D) $141,278

Answer: C Level: Hard LO: 9 Source: CMA, adapted

67. The unit contribution margins of Product X and Product Y are $10 and $9, respectively. Total fixed expenses will be the same regardless of which product is produced and sold. Which of the following statements will always be true:
A) Product X has a higher contribution margin ratio than Product Y.
B) if total sales are $300,000 no matter which product is sold, it is more profitable to sell Product X than Product Y.
C) less units would be required to break even if only Product X is sold than if only Product Y is sold.
D) responses A, B, and C are all correct.

Answer: C Level: Hard LO: 9

68. A company sells two products--J and K. The sales mix is expected to be $3.00 of sales of Product K for every $1.00 of sales of Product J. Product J has a contribution margin ratio of 40% whereas Product K has a contribution margin ratio of 50%. Annual fixed expenses are expected to be $120,000. The overall break-even point for the company in dollar sales is expected to be closest to:
A) $196,000
B) $200,000
C) $253,000
D) $255,000

Answer: C Level: Hard LO: 9 Source: CIMA, adapted

Use the following to answer questions 69-71:

A cement manufacturer has supplied the following data:

Tons of cement produced and sold	220,000
Sales revenue	$924,000
Variable manufacturing expense	$297,000
Fixed manufacturing expense	$280,000
Variable selling and administrative expense	$165,000
Fixed selling and administrative expense	$82,000
Net operating income	$100,000

69. What is the company's unit contribution margin?
    A) $4.20
    B) $0.45
    C) $1.90
    D) $2.10

    Answer: D Level: Easy LO: 1

70. The company's contribution margin ratio is closest to:
    A) 40.0%
    B) 50.0%
    C) 60.0%
    D) 10.7%

    Answer: B Level: Easy LO: 3

71. If the company increases its unit sales volume by 5% without increasing its fixed expenses, then total net operating income should be closest to:
    A) $5,000
    B) $123,100
    C) $105,000
    D) $102,500

    Answer: B Level: Medium LO: 1

Use the following to answer questions 72-74:

A tile manufacturer has supplied the following data:

Boxes of tiles produced and sold	580,000
Sales revenue	$2,842,000
Variable manufacturing expense	1,653,000
Fixed manufacturing expense	784,000
Variable selling and administrative expense	145,000
Fixed selling and administrative expense	128,000
Net operating income	$132,000

72. What is the company's unit contribution margin?
    A) $0.23
    B) $4.90
    C) $3.10
    D) $1.80

    Answer: D Level: Easy LO: 1

73. The company's contribution margin ratio is closest to:
    A) 29.4%
    B) 4.7%
    C) 63.3%
    D) 36.7%

    Answer: D Level: Easy LO: 3

74. If the company increases its unit sales volume by 5% without increasing its fixed expenses, then total net operating income should be closest to:
    A) $6,600
    B) $184,200
    C) $134,422
    D) $138,600

    Answer: B Level: Medium LO: 1

Use the following to answer questions 75-78:

Drake Company's income statement for the most recent year appears below:

Sales (26,000 units)	$650,000
Less: Variable expenses	442,000
Contribution margin	208,000
Less: Fixed expenses	234,000
Net operating loss	$ (26,000)

75. The unit contribution margin is:
    A) $17.00
    B) $8.00
    C) $1.00
    D) $9.00

    Answer: B Level: Easy LO: 1

76. The break-even point in sales dollars is:
    A) $731,250
    B) $676,000
    C) $675,000
    D) $720,000

    Answer: A Level: Medium LO: 5

77. If the company desires a net operating income of $20,000, the number of units needed to be sold is:
    A) 28,500
    B) 31,000
    C) 31,750
    D) 26,500

    Answer: C Level: Medium LO: 6

78. The sales manager is convinced that a $60,000 expenditure on advertising will increase unit sales by fifty percent without any other increase in fixed expenses. If the sales manager is correct, the company's net operating income would increase by:
    A) $44,000
    B) $34,000
    C) $30,000
    D) $49,000

    Answer: A Level: Medium LO: 4

Use the following to answer questions 79-81:

Roberts Company bases its budget on the following data:

Sales	3,600 units
Selling price	$50 per unit
Variable expense	$15 per unit
Fixed expenses	$40,530

79. If the company wants to increase its total contribution margin by 40%, it will need to increase its sales by about:
    A) $48,840
    B) $72,000
    C) $50,400
    D) $34,188

    Answer: B Level: Hard LO: 1

80. If the company wants its margin of safety to equal $40,000, it will need to sell about:
    A) 1,158 units
    B) 1,958 units
    C) 2,300 units
    D) 800 units

    Answer: B Level: Hard LO: 7

81. If the company's fixed expenses decrease by 20%, the break-even point will change from its previous level by about a:
    A) 232 unit increase
    B) 510 unit decrease
    C) 232 unit decrease
    D) 510 unit increase

    Answer: C Level: Hard LO: 4,5

Use the following to answer questions 82-83:

The following data were supplied by Reader Corporation:

Sales	$600,000
Variable expenses	$420,000
Fixed expenses	$141,000

82. The contribution margin is:
    A) $420,000
    B) $54,000
    C) $474,000
    D) $180,000

    Answer: D Level: Easy LO: 1

83. The break-even point in sales dollars is:
    A) $470,000
    B) $180,000
    C) $420,000
    D) $561,000

    Answer: A Level: Easy LO: 5

Use the following to answer questions 84-86:

A manufacturer of premium wire strippers has supplied the following data:

Units produced and sold	560,000
Sales revenue	$4,704,000
Variable manufacturing expense	2,436,000
Fixed manufacturing expense	1,200,000
Variable selling and administrative expense	616,000
Fixed selling and administrative expense	272,000
Net operating income	$180,000

84. The company's margin of safety in units is closest to:
    A) 384,762
    B) 263,704
    C) 61,017
    D) 522,740

    Answer: C Level: Medium LO: 7

85. The company's unit contribution margin is closest to:
    A) $2.95
    B) $5.45
    C) $7.30
    D) $4.05

    Answer: A Level: Easy LO: 1

86. The company's degree of operating leverage is closest to:
    A) 9.18
    B) 3.11
    C) 2.07
    D) 26.13

    Answer: A Level: Medium LO: 8

Use the following to answer questions 87-89:

A company that makes organic fertilizer has supplied the following data:

Bags produced and sold	240,000
Sales revenue	$1,896,000
Variable manufacturing expense	$804,000
Fixed manufacturing expense	$520,000
Variable selling and administrative expense	$180,000
Fixed selling and administrative expense	$270,000
Net operating income	$122,000

87. The company's margin of safety in units is closest to:
    A) 140,000
    B) 202,238
    C) 125,714
    D) 32,105

    Answer: D Level: Medium LO: 7

88. The company's unit contribution margin is closest to:
    A) $4.10
    B) $3.80
    C) $4.55
    D) $7.15

    Answer: B Level: Easy LO: 1

89. The company's degree of operating leverage is closest to:
    A) 1.97
    B) 15.54
    C) 1.25
    D) 7.48

    Answer: D Level: Medium LO: 8

Use the following to answer questions 90-92:

The following data was provided by Truxton Corporation:

Sales	10,000 units
Selling price	$30 per unit
Contribution margin ratio	30%
Margin of safety percentage	40%

90. The variable expense per unit is:
    A) $21
    B) $9
    C) $12
    D) $18

    Answer: A Level: Hard LO: 3

91. The break-even level in sales dollars is:
    A) $180,000
    B) $90,000
    C) $210,000
    D) $54,000

    Answer: A Level: Hard LO: 5

92. Net operating income at sales of 10,000 units is:
    A) $0
    B) $36,000
    C) $90,000
    D) $300,000

    Answer: B Level: Hard LO: 4

Use the following to answer questions 93-95:

A manufacturer of cedar shingles has supplied the following data:

Bundles of cedar shakes produced and sold	280,000
Sales revenue	$2,072,000
Variable manufacturing expense	$1,134,000
Fixed manufacturing expense	$436,000
Variable selling and administrative expense	$238,000
Fixed selling and administrative expense	$164,000
Net operating income	$100,000

93. The company's break-even in unit sales is closest to:
    A) 130,149
    B) 81,081
    C) 25,038
    D) 240,000

    Answer: D Level: Medium LO: 5

94. The company's contribution margin ratio is closest to:
    A) 66.2%
    B) 73.0%
    C) 27.0%
    D) 33.8%

    Answer: D Level: Easy LO: 3

95. The company's degree of operating leverage is closest to:
    A) 2.80
    B) 7.00
    C) 2.29
    D) 20.72

    Answer: B Level: Medium LO: 8

Use the following to answer questions 96-98:

A manufacturer of tiling grout has supplied the following data:

Kilograms produced and sold	300,000
Sales revenue	$1,950,000
Variable manufacturing expense	$960,000
Fixed manufacturing expense	$266,000
Variable selling and administrative expense	$360,000
Fixed selling and administrative expense	$232,000
Net operating income	$132,000

96. The company's break-even in unit sales is closest to:
    A) 43,774
    B) 237,143
    C) 76,615
    D) 80,606

    Answer: B Level: Medium LO: 5

97. The company's contribution margin ratio is closest to:
    A) 67.7%
    B) 74.2%
    C) 32.3%
    D) 25.8%

    Answer: C Level: Easy LO: 3

98. The company's degree of operating leverage is closest to:
    A) 14.77
    B) 2.65
    C) 4.77
    D) 2.27

    Answer: C Level: Medium LO: 8

Use the following to answer questions 99-100:

Clarkson Industries produces an electronic calculator that sells for $75 per unit. Variable expenses are $45 per unit and fixed expenses are $150,000.

99. The break-even point for Clarkson Industries is:
    A) 2,000 units
    B) 3,333 units
    C) 10,000 units
    D) 5,000 units

    Answer: D Level: Easy LO: 5

100. The contribution margin ratio is:
    A) 20%
    B) 66.6%
    C) 60%
    D) 40%

    Answer: D Level: Easy LO: 3

Use the following to answer questions 101-103:

Kerensky Corporation, a wholesale company, has provided the following data:

Sales per period	1,000 units
Selling price	$35 per unit
Variable production cost	$15 per unit
Selling expenses	$5,000 plus 5% of selling price
Administrative expenses	$3,000 plus 10% of selling price

101. The contribution margin ratio is closest to:
    A) 57%
    B) 58%
    C) 42%
    D) 62%

    Answer: C Level: Medium LO: 3

102. The margin of safety percentage is closest to:
A) 46%
B) 60%
C) 42%
D) 62%

Answer: A Level: Medium LO: 7

103. The number of units needed to achieve a target net operating income of $20,000 is closest to:
A) 1,404 units
B) 542 units
C) 1,898 units
D) 1,361 units

Answer: C Level: Medium LO: 4

Use the following to answer questions 104-105:

Mark Corporation produces two models of calculators. The Business model sells for $60, and the Math model sells for $40. The variable expenses are given below:

	Business Model	*Math Model*
Variable production costs per unit	$15	$16
Variable selling and administrative expenses per unit....	$9	$6

The fixed expenses are $75,000 per month. The expected monthly sales of each model are: Business, 1,000 units; Math, 500 units.

104. The contribution margin ratio for the Business model is:
A) 40 percent
B) 75 percent
C) 85 percent
D) 60 percent

Answer: D Level: Medium LO: 3

105. The break-even point for the expected sales mix is (round to nearest whole unit):
A) 833 of each
B) 1,667 Business and 833 Math
C) 1,667 of each
D) 833 Business and 1,667 Math

Answer: B Level: Hard LO: 5

Use the following to answer questions 106-108:

Next year, Coma Paint Company expects to sell 18,000 gallons of paint. Coma is budgeting the following operating results for next year:

Sales	$270,000
Variable expenses	108,000
Contribution margin	162,000
Fixed expenses	90,000
Net operating income	$ 72,000

106. What is Coma's break-even point next year in sales dollars?
A) $49,500
B) $90,000
C) $108,000
D) $150,000

Answer: D Level: Medium LO: 5

107. How many gallons of paint would Coma have to sell next year in order to double its projected net operating income of $72,000?
A) 22,800 gallons
B) 25,200 gallons
C) 26,000 gallons
D) 36,000 gallons

Answer: C Level: Medium LO: 6

108. Assume that Coma wants to sell 20,000 gallons next year. What minimum selling price would Coma have to charge for each gallon in order to still obtain its projected net operating income of $72,000?
A) $11.00
B) $13.50
C) $14.00
D) $14.10

Answer: D Level: Hard LO: 5,6

Use the following to answer questions 109-111:

The following budgeted income statement was prepared by Fullton Corporation:

Sales (100 units at $100 a unit)		$10,000
Cost of goods sold:		
Direct labor (variable)	$1,500	
Direct materials	1,400	
Variable factory overhead	1,000	
Fixed factory overhead	500	4,400
Gross margin		5,600
Selling expenses:		
Variable	600	
Fixed	1,000	
Administrative expenses:		
Variable	500	
Fixed	1,000	3,100
Net operating income		$ 2,500

109. How many units would have to be sold to break even?
A) 50
B) 58
C) 68
D) 75

Answer: A Level: Medium LO: 5 Source: CPA, adapted

110. What would the net operating income be if sales increase by 25%?
A) $3,125
B) $3,750
C) $4,000
D) $5,000

Answer: B Level: Medium Source: CPA, adapted

111. What would be the sales at the break-even point if fixed factory overhead increases by $1,700?
A) $6,700
B) $8,400
C) $8,666
D) $9,200

Answer: B Level: Medium LO: 4,5 Source: CPA, adapted

Use the following to answer questions 112-113:

Barnes Corporation's income statement for last year appears below:

Sales		$1,500,000
Cost of sales:		
Direct materials	$250,000	
Direct labor (variable)	150,000	
Variable overhead	75,000	
Fixed overhead	100,000	575,000
Gross margin		925,000
Selling, general, and administrative:		
Variable	200,000	
Fixed	250,000	450,000
Net operating income		$ 475,000

112. The break-even point last year was:
A) $146,341
B) $636,364
C) $729,730
D) $181,818

Answer: B Level: Medium LO: 5 Source: CMA, adapted

113. The management of Barnes Corporation anticipates a 10 percent increase in total sales, a 12 percent increase in total variable expenses, and a $45,000 increase in total fixed expenses next year. The break-even point for next year is:
A) $729,027
B) $862,103
C) $214,018
D) $474,000

Answer: A Level: Medium LO: 4,5 Source: CMA, adapted

Use the following to answer questions 114-117:

Holger Incorporated, which produces and sells a single product, has provided the following data:

Sales	2,000 units
Selling price	$60 per unit
Variable expense	$40 per unit
Fixed expense.....	$20,000

Consider each of the following questions independently.

114. If the dollar contribution margin per unit is increased by 10% and if total fixed expense is decreased by 20%, net operating income is expected to:
A) increase by $2,000
B) increase by $12,000
C) increase by $8,000
D) increase by $16,000

Answer: C Level: Hard LO: 4

115. If the sales volume decreases by 25% and the variable expense per unit increases by 15%, net operating income is expected to:
A) decrease by $19,000
B) decrease by $1,000
C) increase by $1,750
D) decrease by $15,000

Answer: A Level: Hard LO: 4

116. If the company's fixed expenses increased by $8,000, how many units must be sold to reach a target net operating income of $36,000:
A) 1,400 units
B) 2,200 units
C) 2,400 units
D) 3,200 units

Answer: D Level: Hard LO: 6

117. If the company's sales volume in units decreases by 30%, and if it desires a targeted net operating income of $29,000, then the selling price should be:
A) $58.85
B) $60.75
C) $64.50
D) $75.00

Answer: D Level: Hard LO: 4,6

Use the following to answer questions 118-119:

Given the following data:

	Total	*Per Unit*
Sales	$30,000	$10
Less variable expenses	18,000	6
Contribution margin	12,000	$ 4
Less fixed expenses	9,000	
Net operating income	$ 3,000	

118. If sales decrease by 500 units, by how much would fixed expenses have to be reduced to maintain current net operating income?
A) $5,000
B) $3,000
C) $1,500
D) $2,000

Answer: D Level: Easy LO: 4

119. The company has an opportunity to secure a special order of 800 units if it is willing to drop the selling price on these units to $9. In addition to the usual variable expenses, the costs of securing the special order would be $1,000. The company's regular sales would not be affected by the special order. If the special order is accepted, the company's overall net operating income will:
A) increase $2,400
B) increase $1,400
C) increase $2,200
D) decrease $2,200

Answer: B Level: Easy LO: 4

Use the following to answer questions 120-122:

Junior Bodway, Inc., has provided the following budgeted data:

Sales	10,000 units
Selling price	$50 per unit
Variable expense	$30 per unit
Fixed expense.....	$180,000

120. What is the company's break-even point in sales dollars?
A) $450,000
B) $180,000
C) $300,000
D) $500,000

Answer: A Level: Easy LO: 5

121. How many units would the company have to sell in order to have a net operating income of $40,000?
A) 20,000 units
B) 9,000 units
C) 11,000 units
D) 7,333 units

Answer: C Level: Easy LO: 6

122. At the budgeted sales level of 10,000 units, what is the company's degree of operating leverage?
A) 10.0
B) 6.0
C) 22.5
D) 5.0

Answer: A Level: Easy LO: 8

Use the following to answer questions 123-125:

Pricher Corporation's income statement for last year appears below:

Sales		$2,000,000
Cost of goods sold:		
Direct materials	$500,000	
Direct labor (variable)	150,000	
Variable manufacturing overhead	50,000	
Fixed manufacturing overhead	600,000	1,300,000
Gross margin		700,000
Selling and administrative expenses:		
Variable	100,000	
Fixed	300,000	400,000
Net operating income		$ 300,000

123. The break-even point last year was:
A) $1,500,000
B) $2,571,429
C) $1,250,000
D) $900,000

Answer: A Level: Medium LO: 5

124. The degree of operating leverage last year was:
A) 0.33
B) 2.33
C) 4.00
D) 3.33

Answer: C Level: Easy LO: 8

125. If fixed selling and administrative expenses increase by $60,000 and sales remain at the $2,000,000 level, what is the margin of safety in sales dollars:
A) $300,000
B) $200,000
C) $500,000
D) $400,000

Answer: D Level: Medium LO: 7

Use the following to answer questions 126-127:

Highjinks Inc. has provided the following budgeted data:

Sales	20,000 units
Selling price	$100 per unit
Variable expense	$70 per unit
Fixed expense	$450,000

126. What is the company's margin of safety as a percentage of sales?
A) 50%
B) 25%
C) 75%
D) 100%

Answer: B Level: Medium LO: 7

127. How many units would the company have to sell in order to have a net operating income equal to 5% of total sales dollars?
A) 18,000 units
B) 20,000 units
C) 15,333 units
D) 14,286 units

Answer: A Level: Hard LO: 7

Use the following to answer questions 128-129:

Douglas Corporation produces and sells two models of vacuum cleaners, Standard and Deluxe. Company records show the following data relating to these two products:

	Standard	*Deluxe*
Selling price per unit	$140	$155
Variable production costs per unit	$110	$116
Variable selling and admin. expense per unit	$15	$12
Expected monthly sales in units	600	1,200

The company's total monthly fixed expense is $15,000.

128. The break-even in sales dollars for the expected sales mix is closest to:
A) $140,000
B) $85,000
C) $107,000
D) $98,000

Answer: D Level: Medium LO: 9

129. If the expected monthly sales in units were divided equally between the two models (900 Standard and 900 Deluxe), the break-even level of sales would be:
A) the same as with the expected sales mix.
B) higher than with the expected sales mix.
C) lower than with the expected sales mix.
D) cannot be determined with the available data.

Answer: B Level: Medium LO: 9

Essay Questions

130. Baker Company has a product that sells for $20 per unit. The variable expenses are $12 per unit, and fixed expenses total $30,000 per year.

Required:
a. What is the total contribution margin at the break-even point?
b. What is the contribution margin ratio for the product?
c. If total sales increase by $20,000 and fixed expenses remain unchanged, by how much would net operating income be expected to increase?
d. The marketing manager wants to increase advertising by $6,000 per year. How many additional units would have to be sold to increase overall net operating income by $2,000?

Level: Medium LO: 1,3,4

Answer:

a. At the break-even, the total contribution margin equals total fixed expenses. Therefore, the total contribution margin would be $30,000.

b. Contribution margin ratio = Unit contribution margin ÷ Selling price
= ($20 - $12) ÷ $20 = 40%

c.	Increase in sales	$20,000
	CM ratio	40%
	Increase in net operating income	$8,000

d.	Increase in advertising expenses	$6,000
	Desired increase in net operating income	2,000
	Total required contribution margin	$8,000
	÷ Contribution margin per unit	$8
	Required unit sales	1,000

131. Candice Corporation has decided to introduce a new product. The product can be manufactured using either a capital-intensive or labor-intensive method. The manufacturing method will not affect the quality or sales of the product. The estimated manufacturing costs of the two methods are as follows:

	Capital -intensive	*Labor -intensive*
Variable manufacturing cost per unit.....	$14.00	$17.60
Fixed manufacturing cost per year.....	$2,440,000	$1,320,000

The company's market research department has recommended an introductory selling price of $30 per unit for the new product. The annual fixed selling and administrative expenses of the new product are $500,000. The variable selling and administrative expenses are $2 per unit regardless of how the new product is manufactured.

Required:

a. Calculate the break-even point in units if Candice Corporation uses the:
   1. capital-intensive manufacturing method.
   2. labor-intensive manufacturing method.
b. Determine the unit sales volume at which the net operating income is the same for the two manufacturing methods.
c. Assuming sales of 250,000 units, what is the degree of operating leverage if the company uses the:
   1. capital-intensive manufacturing method.
   2. labor-intensive manufacturing method.
d. What is your recommendation to management concerning which manufacturing method should be used?

Level: Hard LO: 1,4,5,8

Answer:

a.

1. Capital-intensive:

Break-even in units = Fixed expenses ÷ Unit contribution margin
= ($2,440,000 + $500,000) ÷ ($30 - $14 – $2)
= $2,940,000 ÷ $14 per unit
= 210,000 units

2. Labor-intensive:

Break-even in units = Fixed expenses ÷ Unit contribution margin
= ($1,320,000 + $500,000) ÷ ($30 – $17.60 – $2)
= $1,820,000 ÷ $10.40 per unit
= 175,000 units

b. Profit = Sales - Variable expenses - Fixed expenses

Capital-intensive:

Profit = $30Q – $16Q – $2,940,000
= $14Q – $2,940,000

Labor-intensive:

Profit = $30Q – $19.60Q – $1,820,000
= $10.40Q – $1,820,000

The profits are equal when:

$14Q – $2,940,000 = $10.40Q – $1,820,000
$3.60Q = $1,120,000
Q = $1,120,000 ÷ $3.60
Q = 311,111

c.

1. Capital-intensive:

Sales (250,000 × $30)	$7,500,000
Variable expenses (250,000 × $16)	4,000,000
Contribution margin	3,500,000
Fixed expenses	2,940,000
Net operating income	$ 560,000

Degree of operating leverage = Contribution margin ÷ Net operating income
= $3,500,000 ÷ $560,000 = 6.25

2. Labor-intensive:

Sales (250,000 × $30)	$7,500,000
Variable expenses (250,000 × $19.60)	4,900,000
Contribution margin	2,600,000
Fixed expenses	1,820,000
Net operating income	$ 780,000

Degree of operating leverage = Contribution margin ÷ Net operating income
= $2,600,000 ÷ $780,000 = 3.33

d. The decision hinges upon the expected sales of the new product. If management is confident that sales will be in excess of 311,111 units, then the capital-intensive method should be used. If sales are likely to fall below this number, then the labor-intensive method should be used. Management should also be aware that net operating income will be more volatile with the capital-intensive method since it has higher operating leverage.

132. Delphi Company has developed a new product that will be marketed for the first time during the next fiscal year. Although the Marketing Department estimates that 35,000 units could be sold at $36 per unit, Delphi's management has allocated only enough manufacturing capacity to produce a maximum of 25,000 units of the new product annually. The fixed expenses associated with the new product are budgeted at $450,000 for the year. The variable expenses of the new product are $16 per unit.

Required:

a. How many units of the new product must Delphi sell during the next fiscal year in order to break even on the product?
b. What is the profit Delphi would earn on the new product if all of the manufacturing capacity allocated by management is used and the product is sold for $36 per unit?
c. What is the degree of operating leverage for the new product if 25,000 units are sold for $36 per unit?
d. The Marketing Department would like more manufacturing capacity to be devoted to the new product. What would be the percentage increase in net operating income for the new product if its unit sales could be expanded by 10% without any increase in fixed expenses and without any change in the unit selling price and unit variable expense?
e. Delphi's management has stipulated that the new product must earn a profit of at least $125,000 in the next fiscal year. What unit selling price would achieve this target profit if all of the manufacturing capacity allocated by management is used and all of the output can be sold at that selling price?

Level: Hard LO: 4,5,6,8 Source: CMA, adapted

Answer:

a. Break-even in units = Fixed expenses ÷ Unit contribution margin
= $450,000 ÷ $20 = 22,500

b.

Sales (25,000 × $36)	$900,000
Variable expenses (25,000 × $16)	400,000
Contribution margin	500,000
Fixed expenses	450,000
Net operating income	$ 50,000

c. Degree of operating leverage = Contribution margin ÷ Net operating income
= $500,000 ÷ $50,000 = 10

d. Percentage increase in net operating income
= Degree of operating leverage × Percentage change in sales
= 10 × 10% =100%

Or,

Sales (25,000 × 1.1 × $36)	$990,000
Variable expenses (25,000 × 1.1 × $16)	440,000
Contribution margin	550,000
Fixed expenses	450,000
Net operating income	$100,000

Percentage increase in net operating income
= ($100,000 – $50,000) ÷ $50,000= 100%

e. Sales = Variable expenses + Fixed expenses + Target profit
25,000P = ($16 × 25,000) + $450,0000 + $125,000
where P is the selling price
25,000P = $400,000 + $450,000 + $125,000
P = $975,000 ÷ 25,000 = $39

133. Parkins Company produces and sells a single product. The company's income statement for the most recent month is given below:

Sales (6,000 units at $40 per unit)		$240,000
Less manufacturing costs:		
Direct materials	$48,000	
Direct labor (variable)	60,000	
Variable factory overhead	12,000	
Fixed factory overhead	30,000	150,000
Gross margin		90,000
Less selling and other expenses:		
Variable selling and other expenses	24,000	
Fixed selling and other expenses	42,000	66,000
Net operating income		$ 24,000

There are no beginning or ending inventories.

Required:

a. Compute the company's monthly break-even point in units of product.
b. What would the company's monthly net operating income be if sales increased by 25% and there is no change in total fixed expenses?
c. What dollar sales must the company achieve in order to earn a net operating income of $50,000 per month?
d. The company has decided to automate a portion of its operations. The change will reduce direct labor costs per unit by 40 percent, but it will double the costs for fixed factory overhead. Compute the new break-even point in units.

Level: Medium LO: 4,5,6

Answer:

a. The company's income statement in contribution format would be:

Sales		$240,000	$40	100%
Less variable expenses:				
Direct materials	$48,000			
Direct labor	60,000			
Variable factory overhead	12,000			
Variable selling and other expenses	24,000	144,000	24	60%
Contribution margin		96,000	$16	40%
Less fixed expenses:				
Fixed factory overhead	30,000			
Fixed selling and other expense	42,000	72,000		
Net operating income		$ 24,000		

The break-even point in units would be:
$72,000 ÷ $16 = 4,500 units.

b. 6,000 × 125% = 7,500 units

Sales (7,500 units at $40)	$300,000
Less variable expenses (7,500 units at $24)	180,000
Contribution margin	120,000
Less fixed expenses	72,000
Net operating income	$ 48,000

c. ($72,000 + $50,000) ÷ 0.40 = $305,000

d. Direct labor costs are presently $10 per unit ($60,000 ÷ 6,000 units) and will decrease by $4 per unit ($10 × 40%). Therefore, the company's new cost structure will be:

Selling price	$40	100%
Less variable expenses ($24 – $4)	20	50%
Contribution margin	$20	50%

(2 × $30,000 + $42,000) ÷ $20 per unit = 5,100 units

134. Zoran Corporation manufactures and sells a single product; cordless telephones. Zoran is considering upgrading its current manufacturing facilities with more modern equipment. Relevant cost data under the current facility and the upgraded facility is provided below:

	Current	*Upgraded*
Manufacturing costs:		
Direct materials cost per unit	$20.00	$20.00
Direct labor cost per unit.....	$18.00	$10.00
Variable overhead cost per unit.....	$34.00	$24.00
Fixed overhead cost in total	$43,000	$160,000
Selling and administrative expenses:		
Variable expense per unit.....	$5.00	$5.00
Fixed expense in total.....	$12,000	$12,000

Under either system, Zoran will sell the cordless phones for $125 per phone.

Required:
a. What is the break-even point (in number of phones) of each option?
b. At what level of sales (in number of phones) will it start being more profitable for Zoran to have the upgraded facilities?

Level: Hard LO: 4,5

Answer:
a.
Current:
($43,000 + $12,000) ÷ ($125 – $20 – $18 – $34 – $5) = 1,146 phones (rounded)
Upgraded:
($160,000 + $12,000) ÷ ($125 – $20 – $10 – $24 – $5) = 2,606 phones (rounded)

b. CM per phone on current system: $125 – $20 – $18 – $34 – $5 = $48
CM per phone on upgraded system: $125 – $20 – $10 – $24 – $5 = $66

$$\begin{aligned} \$48Q - \$55{,}000 &= \$66Q - \$172{,}000 \\ \$117{,}000 &= \$18Q \\ Q &= 6{,}500 \text{ phones} \end{aligned}$$

135. Penury Company offers two products. At present, the following represents the usual results of a month's operations:

	Product K		*Product L*		
	Amount	*Per Unit*	*Amount*	*Per Unit*	*Combined Amount*
Sales revenue	$120,000	$1.20	$80,000	$0.80	$200,000
Variable expenses	60,000	0.60	60,000	0.60	120,000
Contribution margin	$ 60,000	$0.60	$20,000	$0.20	80,000
Fixed expenses					50,000
Net operating income					$ 30,000

Required:

a. Find the break-even point in terms of dollars.
b. Find the margin of safety in terms of dollars.
c. The company is considering decreasing product K's unit sales to 80,000 and increasing product L's unit sales to 180,000, leaving unchanged the selling price per unit, variable expense per unit, and total fixed expenses. Would you advise adopting this plan?
d. Refer to (c) above. Under the new plan, find the break-even point in terms of dollars.
e. Under the new plan in (c) above, find the margin of safety in terms of dollars.

Level: Medium LO: 5,7,9

Answer:

a. CM ratio = Contribution margin ÷ Sales revenue
= $80,000 ÷ $200,000 = 40%

Break-even in dollars = Fixed expenses ÷ CM ratio
= $50,000 ÷ 0.40 = $125,000

b. Margin of safety = Sales revenue - Sales at break-even
= $200,000 – $125,000 = $75,000

c.

	Product K		*Product L*		
Units	80,000		180,000		
	Amount	*Per Unit*	*Amount*	*Per Unit*	*Combined Amount*
Sales revenue	$96,000	$1.20	$144,000	$0.80	$240,000
Variable expense	48,000	0.60	108,000	0.60	156,000
Contribution margin	$48,000	$0.60	$ 36,000	$0.20	84,000
Fixed expense					50,000
Net operating income					$ 38,000

Yes, the new arrangement is more profitable.

d. CM ratio = Contribution margin ales revenue
= $84,000 ÷ $240,000 = 35%

Break-even point dollars = Fixed expense ÷ CM ratio
= $50,000 ÷ 0.35 = $142,857

e. Margin of safety = Sales revenue – Sales at break-even
= $240,000 – $142,857 = $97,143

136. Lobo, International has two divisions, Manufacturing and Retail which had the following operating results over the last two years:

	Manufacturing Division		*Retail Division*	
	Year 1	*Year 2*	*Year 1*	*Year 2*
Sales (in units)	5,000	6,500	2,000	2,400
Sales (in dollars)	$400,000	$520,000	$250,000	$300,000
Less cost of goods sold	290,000	353,000	160,000	192,000
Gross margin	110,000	167,000	90,000	108,000
Less selling and administrative expenses	50,000	59,000	52,000	56,000
Net operating income	$ 60,000	$108,000	$ 38,000	$ 52,000

Assume that the cost structure in each division above did not change over the two years. Use the high-low method as needed to estimate variable and fixed expenses.

Required:
a. Calculate the break-even point in sales dollars for each division.
b. Calculate the degree of operating leverage for the Manufacturing Division for each year.

Level: Hard LO: 5,8

Answer:
a. Total expenses, Year 1, Manuf. = $290,000 + $50,000 = $340,000
Total expenses, Year 2, Manuf. = $353,000 + $59,000 = $412,000

Total expenses, Year 1, Retail = $160,000 + $52,000 = $212,000
Total expenses, Year 2, Retail = $192,000 + $56,000 = $248,000

Manufacturing:
Variable expenses per unit using the high-low method:
($412,000 – $340,000) ÷ (6,500 – 5,000) = $48 per unit
Variable expenses = $48 × 5,000 = $240,000
Fixed expenses = $340,000 – $240,000 = $100,000
CM ratio = ($400,000 – $240,000) ÷ $400,000 = 40%
Break-even sales = $100,000 ÷ 0.40 = $250,000

Retail:
Variable expenses per unit using the high-low method:
($248,000 – $212,000) ÷ (2,400 – 2,000) = $90 per unit;
Variable expenses = $90 × 2,000 = $180,000
Fixed expenses = $212,000 – $180,000 = $32,000
CM ratio = ($250,000 – $180,000) ÷ $250,000 = 28%
Break-even sales = $32,000 ÷ 0.28 = $114,286

b. Year 1: ($400,000 – ($48 × 5,000)) ÷ $60,000 = 2.67 (rounded)
Year 2: ($520,000 – ($48 × 6,500)) ÷ $108,000 = 1.93 (rounded)

Chapter 7 Variable Costing: A Tool for Management

True/False Questions

1. The inventory value shown on the balance sheet is generally higher under absorption costing than under variable costing.

   Answer: True Level: Medium LO: 1

2. Under variable costing, inventoriable product costs consist of direct materials, direct labor, variable manufacturing overhead and variable selling and administration expenses.

   Answer: False Level: Medium LO: 1

3. Under variable costing, an increase in the fixed factory overhead will have no effect on the unit product cost.

   Answer: True Level: Medium LO: 1

4. Under the absorption costing method, a portion of fixed manufacturing overhead cost is allocated to each unit of product.

   Answer: True Level: Easy LO: 1

5. Under variable costing, it is possible to defer a portion of the fixed manufacturing overhead costs of the current period to future periods through the inventory account.

   Answer: False Level: Medium LO: 2

6. Under absorption costing, a portion of fixed manufacturing overhead cost is released from inventory when sales volume exceeds production volume.

   Answer: True Level: Medium LO: 2

7. Contribution margin and gross margin mean the same thing.

   Answer: False Level: Easy LO: 2

8. When reconciling variable costing and absorption costing net operating income, fixed manufacturing overhead costs deferred in inventory under absorption costing should be deducted from variable costing net operating income to arrive at the absorption costing net operating income.

   Answer: False Level: Medium LO: 3

9. If production equals sales for the period, absorption costing and variable costing will produce the same net operating income under LIFO.

   Answer: True Level: Medium LO: 3

10. When the number of units in inventories decrease between the beginning and end of the period, absorption costing net operating income will typically be greater than variable costing net operating income.

    Answer: False Level: Medium LO: 3

11. When viewed over the long term, accumulated net operating income will be the same for variable and absorption costing if there are no ending inventories at the end of the term.

    Answer: True Level: Hard LO: 4

12. Under absorption costing, the profit for a period is not affected by changes in inventory.

    Answer: False Level: Medium LO: 4

13. When using absorption costing, a company may be able to show a profit even if it is operating below the breakeven point.

    Answer: True Level: Medium LO: 4

14. Variable costing is more compatible with cost-volume-profit analysis than is absorption costing.

    Answer: True Level: Easy LO: 4

15. Just-In-Time (JIT) methods generally increase the difference between absorption and variable costing net operating income.

    Answer: False Level: Medium LO: 5

Multiple Choice Questions

16. Under variable costing, fixed manufacturing overhead is:
    A) carried in a liability account.
    B) carried in an asset account.
    C) ignored.
    D) immediately expensed as a period cost.

    Answer: D Level: Easy LO: 1,2

17. Which of the following is true of a company that uses absorption costing?
    A) Net operating income fluctuates directly with changes in sales volume.
    B) Fixed production and fixed selling costs are considered to be product costs.
    C) Unit product costs can change as a result of changes in the number of units manufactured.
    D) Variable selling expenses are included in product costs.

    Answer: C Level: Medium LO: 1,2

18. Under absorption costing, fixed manufacturing overhead costs:
    A) are deferred in inventory when production exceeds sales.
    B) are always treated as period costs.
    C) are released from inventory when production exceeds sales.
    D) none of these.

    Answer: A Level: Medium LO: 1,2

19. Which of the following costs at a manufacturing company would be treated as a product cost under both absorption costing and variable costing?

	Variable overhead	*Variable selling and administrative*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

    Answer: B Level: Easy LO: 1

20. Under absorption costing, product costs include:

	Fixed factory overhead	*Variable factory overhead*
A)	No	No
B)	No	Yes
C)	Yes	Yes
D)	Yes	No

Answer: C Level: Easy LO: 1 Source: CPA, adapted

21. Which of the following are included in product costs under variable costing?

I. Variable manufacturing overhead.
II. Fixed manufacturing overhead.
III. Selling and administrative expenses.

A) I, II, and III.
B) I and III.
C) I and II.
D) I.

Answer: D Level: Medium LO: 1

22. Under variable costing:
A) net operating income will tend to move up and down in response to changes in levels of production.
B) inventory costs will be lower than under absorption costing.
C) net operating income will tend to vary inversely with production changes.
D) net operating income will always be higher than under absorption costing.

Answer: B Level: Medium LO: 2,3,4

23. In an income statement prepared using the variable costing method, fixed selling and administrative expenses would:
A) be used in the computation of the contribution margin.
B) be used in the computation of net operating income but not in the computation of the contribution margin.
C) be treated the same as variable manufacturing expenses.
D) not be used.

Answer: B Level: Medium LO: 2 Source: CPA, adapted

24. In an income statement prepared using the variable costing method, fixed manufacturing overhead would:
    A) not be used.
    B) be used in the computation of the contribution margin.
    C) be used in the computation of net operating income but not in the computation of the contribution margin.
    D) be treated the same as variable manufacturing overhead.

    Answer: C Level: Medium LO: 2 Source: CPA, adapted

25. In an income statement prepared as an internal report using variable costing, variable selling and administrative expenses would:
    A) not be used.
    B) be used in the computation of the contribution margin.
    C) be used in the computation of net operating income but not in the computation of the contribution margin.
    D) be treated the same as fixed selling and administrative expenses.

    Answer: B Level: Medium LO: 2

26. When production exceeds sales, the net operating income reported under absorption costing generally will be:
    A) less than net operating income reported under variable costing.
    B) greater than net operating income reported under variable costing.
    C) equal to net operating income reported under variable costing.
    D) higher or lower because no generalization can be made.

    Answer: B Level: Medium LO: 3

27. When sales exceed production, the net operating income reported under variable costing generally will be:
    A) less than net operating income reported under absorption costing.
    B) greater than net operating income reported under absorption costing.
    C) equal to net operating income reported under absorption costing.
    D) higher or lower because no generalization can be made.

    Answer: B Level: Medium LO: 3

28. A single-product company prepares income statements using both absorption and variable costing methods. Manufacturing overhead cost applied per unit produced under absorption costing in year 2 was the same as in year 1. The year 2 variable costing statement reported a profit whereas the year 2 absorption costing statement reported a loss. The difference in reported income could be explained by units produced in year 2 being:
    A) Less than units sold in year 2.
    B) Less than the activity level used for allocating overhead to the product.
    C) In excess of the activity level used for allocating overhead to the product.
    D) In excess of units sold in year 2.

    Answer: A Level: Hard LO: 3 Source: CPA, adapted

29. The type of costing that provides the best information for breakeven analysis is:
    A) job-order costing.
    B) variable costing.
    C) process costing.
    D) absorption costing.

    Answer: B Level: Medium LO: 4 Source: CMA, adapted

30. Advocates of variable costing argue that:
    A) fixed production costs should be added to inventory because such costs have future service potential and therefore are inventoriable as an asset.
    B) fixed production costs should be capitalized as an asset and amortized over future periods when benefits from such costs are expected to be received.
    C) fixed production costs should be charged to the period in which they are incurred unless sales do not equal production in which case any difference should be capitalized as an asset and amortized over future periods.
    D) fixed production costs should be charged to the period in which they are incurred.

    Answer: D Level: Medium LO: 4

31. Gyro Gear Company produces a single product, a special gear used in automatic transmissions. Each gear sells for $28, and the company sells 500,000 gears each year. Unit cost data are presented below:

	Variable	*Fixed*
Direct material	$6.00	
Direct labor	$5.00	
Manufacturing overhead	$2.00	$7.00
Selling & administrative	$4.00	$3.00

The unit product cost of gears under variable costing is:
A) $13
B) $20
C) $17
D) $27

Answer: A Level: Easy LO: 1 Source: CPA, adapted

32. A company produces a single product. Variable production costs are $12 per unit and variable selling and administrative expenses are $3 per unit. Fixed manufacturing overhead totals $36,000 and fixed selling and administration expenses total $40,000. Assuming a beginning inventory of zero, production of 4,000 units and sales of 3,600 units, the dollar value of the ending inventory under variable costing would be:
A) $4,800
B) $8,400
C) $6,000
D) $3,600

Answer: A Level: Easy LO: 1

33. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Units in beginning inventory	0
Units produced	7,700
Units sold	7,500
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$40
Direct labor	$34
Variable manufacturing overhead	$3
Variable selling and administrative	$10
Fixed costs:	
Fixed manufacturing overhead	$146,300
Fixed selling and administrative	$60,000

What is the unit product cost for the month under variable costing?
A) $106
B) $87
C) $96
D) $77

Answer: D Level: Easy LO: 1

34. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Units in beginning inventory	0
Units produced	2,900
Units sold	2,500
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$27
Direct labor	$20
Variable manufacturing overhead	$6
Variable selling and administrative	$4
Fixed costs:	
Fixed manufacturing overhead	$72,500
Fixed selling and administrative	$2,500

What is the unit product cost for the month under variable costing?
A) $57
B) $53
C) $78
D) $82

Answer: B Level: Easy LO: 1

35. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$85
Units in beginning inventory	0
Units produced	5,000
Units sold	4,600
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$19
Direct labor	$15
Variable manufacturing overhead	$2
Variable selling and administrative	$10
Fixed costs:	
Fixed manufacturing overhead	$110,000
Fixed selling and administrative	$69,000

What is the total period cost for the month under the variable costing approach?
A) $179,000
B) $110,000
C) $115,000
D) $225,000

Answer: D Level: Easy LO: 1

36. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$143
Units in beginning inventory	0
Units produced	8,200
Units sold	7,800
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$49
Direct labor	$42
Variable manufacturing overhead	$3
Variable selling and administrative	$7
Fixed costs:	
Fixed manufacturing overhead	$270,600
Fixed selling and administrative	$46,800

What is the total period cost for the month under the variable costing approach?
A) $101,400
B) $372,000
C) $317,400
D) $270,600

Answer: B Level: Easy LO: 1

37. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$78
Units in beginning inventory	0
Units produced	5,300
Units sold	4,900
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$31
Direct labor	$14
Variable manufacturing overhead	$2
Variable selling and administrative	$5
Fixed costs:	
Fixed manufacturing overhead	$68,900
Fixed selling and administrative	$58,800

What is the total period cost for the month under the absorption costing approach?
A) $152,200
B) $83,300
C) $68,900
D) $58,800

Answer: B Level: Easy LO: 1

38. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$100
Units in beginning inventory	0
Units produced	2,400
Units sold	2,100
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$31
Direct labor	$11
Variable manufacturing overhead	$1
Variable selling and administrative	$8
Fixed costs:	
Fixed manufacturing overhead	$79,200
Fixed selling and administrative	$8,400

What is the total period cost for the month under the absorption costing approach?
A) $79,200
B) $8,400
C) $104,400
D) $25,200

Answer: D Level: Easy LO: 1

39. The following data pertain to last year's operations at Tredder Corporation, a company that produces a single product:

Units in beginning inventory	0
Units produced	20,000
Units sold	19,000
Selling price per unit	$100.00
Variable costs per unit:	
Direct materials	$12.00
Direct labor	$25.00
Variable manufacturing overhead	$3.00
Variable selling and administrative	$2.00
Fixed costs per year:	
Fixed manufacturing overhead	$500,000
Fixed selling and administrative	$600,000

What was the variable costing net operating income last year?
A) $12,000
B) $57,000
C) $2,000
D) $27,000

Answer: C Level: Medium LO: 2

40. The following data pertain to last year's operations at Hruska Corporation, a company that produces a single product:

Units in beginning inventory	0
Units produced	5,000
Units sold	4,000
Selling price per unit	$180.00
Variable costs per unit:	
Direct materials	$20.00
Direct labor	$30.00
Variable manufacturing overhead	$10.00
Variable selling and administrative	$20.00
Fixed costs per year:	
Fixed manufacturing overhead	$100,000
Fixed selling and administrative	$300,000

What was the variable costing net operating income last year?
A) $20,000
B) $80,000
C) $0
D) $60,000

Answer: C Level: Medium LO: 2

41. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$102
Units in beginning inventory	0
Units produced	8,700
Units sold	8,300
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$29
Direct labor	$31
Variable manufacturing overhead	$2
Variable selling and administrative	$6
Fixed costs:	
Fixed manufacturing overhead	$269,700
Fixed selling and administrative	$8,300

The total contribution margin for the month under the variable costing approach is:
A) $282,200
B) $74,700
C) $332,000
D) $12,500

Answer: A Level: Easy LO: 2

42. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$121
Units in beginning inventory	0
Units produced	5,300
Units sold	5,200
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$27
Direct labor	$46
Variable manufacturing overhead	$1
Variable selling and administrative	$5
Fixed costs:	
Fixed manufacturing overhead	$169,600
Fixed selling and administrative	$31,200

The total contribution margin for the month under the variable costing approach is:
A) $48,800
B) $244,400
C) $218,400
D) $78,000

Answer: C Level: Easy LO: 2

43. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$123
Units in beginning inventory	0
Units produced	5,900
Units sold	5,700
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$40
Direct labor	$32
Variable manufacturing overhead	$3
Variable selling and administrative	$5
Fixed costs:	
Fixed manufacturing overhead	$135,700
Fixed selling and administrative	$108,300

The total gross margin for the month under the absorption costing approach is:
A) $245,100
B) $162,100
C) $142,500
D) $5,700

Answer: C Level: Easy LO: 2

44. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$86
Units in beginning inventory	0
Units produced	3,500
Units sold	3,400
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$37
Direct labor	$15
Variable manufacturing overhead	$5
Variable selling and administrative	$10
Fixed costs:	
Fixed manufacturing overhead	$24,500
Fixed selling and administrative	$27,200

The total gross margin for the month under the absorption costing approach is:
A) $81,200
B) $74,800
C) $64,600
D) $13,600

Answer: B Level: Easy LO: 2

45. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$85
Units in beginning inventory	0
Units produced	2,900
Units sold	2,700
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$22
Direct labor	$13
Variable manufacturing overhead	$3
Variable selling and administrative	$5
Fixed costs:	
Fixed manufacturing overhead	$46,400
Fixed selling and administrative	$51,300

What is the net operating income for the month under variable costing?
A) $8,100
B) $15,700
C) $18,900
D) $3,200

Answer: B Level: Medium LO: 2

46. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$103
Units in beginning inventory	0
Units produced	1,700
Units sold	1,600
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$46
Direct labor	$14
Variable manufacturing overhead	$4
Variable selling and administrative	$9
Fixed costs:	
Fixed manufacturing overhead	$11,900
Fixed selling and administrative	$22,400

What is the net operating income for the month under variable costing?
A) $7,300
B) $14,400
C) $13,700
D) $700

Answer: C Level: Medium LO: 2

47. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$103
Units in beginning inventory	0
Units produced	1,700
Units sold	1,400
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$39
Direct labor	$32
Variable manufacturing overhead	$6
Variable selling and administrative	$5
Fixed costs:	
Fixed manufacturing overhead	$6,800
Fixed selling and administrative	$8,400

What is the net operating income for the month under absorption costing?
A) $14,200
B) ($8,900)
C) $1,200
D) $15,400

Answer: D Level: Medium LO: 2

48. A manufacturing company that produces a single product has provided the following data concerning its most recent month of operations:

Selling price	$122
Units in beginning inventory	0
Units produced	8,600
Units sold	8,500
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$34
Direct labor	$37
Variable manufacturing overhead	$7
Variable selling and administrative	$4
Fixed costs:	
Fixed manufacturing overhead	$292,400
Fixed selling and administrative	$34,000

What is the net operating income for the month under absorption costing?
A) $17,000
B) $3,400
C) $5,800
D) $13,600

Answer: A Level: Medium LO: 2

49. Stead Company produces a single product. Last year, the company's net operating income computed by the absorption costing method was $6,400, and its net operating income computed by the variable costing method was $9,100. The company's unit product cost was $17 under variable costing and $20 under absorption costing. If the ending inventory consisted of 2,100 units, the beginning inventory in units must have been:
A) 1,200
B) 2,100
C) 3,000
D) 4,800

Answer: C Level: Hard LO: 3

50. King Company produces a single product. During March, the company had net operating income under absorption costing that was $3,500 lower than under variable costing. The company sold 7,000 units in March, and its variable costs were $7 per unit, of which $3 was variable selling expense. If fixed manufacturing overhead was $2 per unit under absorption costing, then how many units did the company produce during March?
A) 5,250 units
B) 8,750 units
C) 6,500 units
D) 6,125 units

Answer: A Level: Hard LO: 3

51. Johnson Company produces a single product. Last year, the company had 25,000 units in its ending inventory. Johnson's variable production costs were $10 per unit and fixed manufacturing overhead costs were $5 per unit. The company's net operating income last year was $10,000 higher under variable costing than it was under absorption costing. Given these facts, the number of units of product in beginning inventory last year must have been:
A) 24,000 units
B) 27,000 units
C) 23,000 units
D) 24,333 units

Answer: B Level: Hard LO: 3

52. Rose Corporation produces a single product. Last year, the company had net operating income of $50,000 using variable costing. Beginning and ending inventories were 13,000 units and 18,000 units, respectively. If the fixed manufacturing overhead cost was $2.00 per unit, what would have been the net operating income using absorption costing?
A) $40,000
B) $50,000
C) $60,000
D) $86,000

Answer: C Level: Medium LO: 3 Source: CPA, adapted

53. A company that produces a single product had a net operating income of $85,500 using variable costing and a net operating income of $90,000 using absorption costing. Total fixed manufacturing overhead was $150,000, and production was 100,000 units. Between the beginning and the end of the year, the inventory level:
A) increased by 4,500 units
B) decreased by 4,500 units
C) increased by 3,000 units
D) decreased by 3,000 units

Answer: C Level: Hard LO: 3

54. Olympia Company produces a single product. Last year, the company had a net operating income of $92,000 using absorption costing and a net operating income of $98,600 using variable costing. If the fixed manufacturing overhead cost was $3.00 per unit for the last two years, and if production was 18,000 units, then sales in units last year were:
A) 24,600
B) 20,200
C) 15,800
D) 15,000

Answer: B Level: Hard LO: 3

55. Welk Company produces a single product. Last year, the company had 16,000 units in its beginning inventory. During the year, the company's variable production costs were $6 per unit and its fixed manufacturing overhead costs were $4 per unit. The company's net operating income for the year was $24,000 higher under absorption costing than it was under variable costing. Given these facts, the number of units in the ending inventory must have been:
A) 22,000 units
B) 10,000 units
C) 6,000 units
D) 4,000 units

Answer: A Level: Hard LO: 3

Use the following to answer questions 56-58:

Cutterski Corporation manufactures a propeller. Shown below is Cutterski's cost structure:

	Variable cost per propeller	*Total fixed cost for the year*
Manufacturing cost.....	$114	$810,000
Selling and administrative.....	$20	$243,000

In its first year of operations, Cutterski produced 60,000 propellers but only sold 54,000.

56. What is the total cost that would be assigned to Cutterski's finished goods inventory at the end of the first year of operations under the variable costing method?
    A) $765,000
    B) $684,000
    C) $804,000
    D) $912,000

    Answer: B Level: Easy LO: 1

57. At what amount will Cutterski report its cost of goods sold for this first year for external reporting purposes?
    A) $6,156,000
    B) $6,885,000
    C) $6,966,000
    D) $8,208,000

    Answer: B Level: Medium LO: 2

58. Which costing method (variable or absorption) will generate a higher net operating income in Cutterski's first year of operations and by how much?
    A) variable by $81,000
    B) variable by $108,000
    C) absorption by $81,000
    D) absorption by $108,000

    Answer: C Level: Medium LO: 2,3

Use the following to answer questions 59-66:

Abbey Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$129
Units in beginning inventory	0
Units produced	6,300
Units sold	6,100
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$32
Direct labor	$50
Variable manufacturing overhead	$5
Variable selling and administrative	$11
Fixed costs:	
Fixed manufacturing overhead	$88,200
Fixed selling and administrative	$97,600

59. What is the unit product cost for the month under variable costing?
    A) $87
    B) $101
    C) $112
    D) $98

    Answer: A Level: Easy LO: 1

60. What is the unit product cost for the month under absorption costing?
    A) $101
    B) $98
    C) $87
    D) $112

    Answer: A Level: Easy LO: 1

61. The total contribution margin for the month under the variable costing approach is:
    A) $170,800
    B) $256,200
    C) $100,900
    D) $189,100

    Answer: D Level: Medium LO: 2

62. The total gross margin for the month under the absorption costing approach is:
    A) $189,100
    B) $6,100
    C) $170,800
    D) $191,000

    Answer: C Level: Medium LO: 2

63. What is the total period cost for the month under the variable costing approach?
    A) $252,900
    B) $164,700
    C) $88,200
    D) $185,800

    Answer: A Level: Hard LO: 1

64. What is the total period cost for the month under the absorption costing approach?
    A) $88,200
    B) $252,900
    C) $97,600
    D) $164,700

    Answer: D Level: Hard LO: 1

65. What is the net operating income for the month under variable costing?
    A) $3,300
    B) $2,800
    C) ($14,100)
    D) $6,100

    Answer: A Level: Medium LO: 2

66. What is the net operating income for the month under absorption costing?
    A) $3,300
    B) $2,800
    C) ($14,100)
    D) $6,100

    Answer: D Level: Medium LO: 2

Use the following to answer questions 67-74:

Abbitt Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$142
Units in beginning inventory	0
Units produced	2,500
Units sold	2,300
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$22
Direct labor	$57
Variable manufacturing overhead	$1
Variable selling and administrative	$6
Fixed costs:	
Fixed manufacturing overhead	$82,500
Fixed selling and administrative	$41,400

67. What is the unit product cost for the month under variable costing?
    A) $80
    B) $119
    C) $113
    D) $86

    Answer: A Level: Easy LO: 1

68. What is the unit product cost for the month under absorption costing?
    A) $86
    B) $119
    C) $113
    D) $80

    Answer: C Level: Easy LO: 1

69. The total contribution margin for the month under the variable costing approach is:
    A) $66,700
    B) $128,800
    C) $46,300
    D) $142,600

    Answer: B Level: Medium LO: 2

70. The total gross margin for the month under the absorption costing approach is:
    A) $11,500
    B) $66,700
    C) $89,300
    D) $128,800

    Answer: B Level: Medium LO: 2

71. What is the total period cost for the month under the variable costing approach?
    A) $55,200
    B) $82,500
    C) $137,700
    D) $123,900

    Answer: C Level: Hard LO: 1

72. What is the total period cost for the month under the absorption costing approach?
    A) $137,700
    B) $55,200
    C) $41,400
    D) $82,500

    Answer: B Level: Hard LO: 1

73. What is the net operating income for the month under variable costing?
    A) $4,900
    B) $11,500
    C) $6,600
    D) ($11,100)

    Answer: A Level: Medium LO: 2

74. What is the net operating income for the month under absorption costing?
    A) ($11,100)
    B) $11,500
    C) $6,600
    D) $4,900

    Answer: B Level: Medium LO: 2

Use the following to answer questions 75-78:

Feasal Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$108
Units in beginning inventory	0
Units produced	7,700
Units sold	7,500
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$26
Direct labor	$38
Variable manufacturing overhead	$3
Variable selling and administrative	$4
Fixed costs:	
Fixed manufacturing overhead	$184,800
Fixed selling and administrative	$90,000

75. What is the unit product cost for the month under variable costing?
    A) $71
    B) $67
    C) $95
    D) $91

    Answer: B Level: Easy LO: 1

76. What is the unit product cost for the month under absorption costing?
    A) $71
    B) $67
    C) $95
    D) $91

    Answer: D Level: Easy LO: 1

77. What is the net operating income for the month under variable costing?
    A) ($10,700)
    B) $7,500
    C) $4,800
    D) $2,700

    Answer: D Level: Medium LO: 2

78. What is the net operating income for the month under absorption costing?
    A) $2,700
    B) $7,500
    C) $4,800
    D) ($10,700)

    Answer: B Level: Medium LO: 2

Use the following to answer questions 79-82:

Feheln Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$114
Units in beginning inventory	0
Units produced	7,300
Units sold	7,200
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$30
Direct labor	$53
Variable manufacturing overhead	$3
Variable selling and administrative	$8
Fixed costs:	
Fixed manufacturing overhead	$73,000
Fixed selling and administrative	$57,600

79. What is the unit product cost for the month under variable costing?
    A) $94
    B) $86
    C) $96
    D) $104

    Answer: B Level: Easy LO: 1

80. What is the unit product cost for the month under absorption costing?
    A) $104
    B) $94
    C) $96
    D) $86

    Answer: C Level: Easy LO: 1

81. What is the net operating income for the month under variable costing?
    A) $1,000
    B) $14,400
    C) $13,400
    D) $4,800

    Answer: C Level: Medium LO: 2

82. What is the net operating income for the month under absorption costing?
    A) $14,400
    B) $13,400
    C) $1,000
    D) $4,800

    Answer: A Level: Medium LO: 2

Use the following to answer questions 83-86:

Jamil Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$71
Units in beginning inventory	400
Units produced	8,100
Units sold	8,200
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$20
Direct labor	$15
Variable manufacturing overhead	$6
Variable selling and administrative	$4
Fixed costs:	
Fixed manufacturing overhead	$64,800
Fixed selling and administrative	$139,400

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

83. What is the unit product cost for the month under variable costing?
    A) $49
    B) $41
    C) $53
    D) $45

    Answer: B Level: Medium LO: 1

84. What is the unit product cost for the month under absorption costing?
    A) $45
    B) $53
    C) $41
    D) $49

    Answer: D Level: Medium LO: 1

85. What is the net operating income for the month under variable costing?
    A) $9,000
    B) $13,100
    C) $8,200
    D) $2,400

    Answer: A Level: Medium LO: 2

86. What is the net operating income for the month under absorption costing?
    A) $13,100
    B) $9,000
    C) $8,200
    D) $2,400

    Answer: C Level: Medium LO: 2

Use the following to answer questions 87-90:

Jameson Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$80
Units in beginning inventory	600
Units produced	8,400
Units sold	8,600
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$24
Direct labor	$33
Variable manufacturing overhead	$3
Variable selling and administrative	$5
Fixed costs:	
Fixed manufacturing overhead	$117,600
Fixed selling and administrative	$8,600

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

87. What is the unit product cost for the month under variable costing?
    A) $79
    B) $60
    C) $74
    D) $65

    Answer: B Level: Medium LO: 1

88. What is the unit product cost for the month under absorption costing?
    A) $74
    B) $60
    C) $79
    D) $65

    Answer: A Level: Medium LO: 1

89. What is the net operating income for the month under variable costing?
    A) $14,800
    B) $2,800
    C) $0
    D) $5,600

    Answer: B Level: Medium LO: 2

90. What is the net operating income for the month under absorption costing?
    A) $5,600
    B) $2,800
    C) $14,800
    D) $0

    Answer: D Level: Medium LO: 2

Use the following to answer questions 91-94:

Habib Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$141
Units in beginning inventory	0
Units produced	3,700
Units sold	3,500
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$38
Direct labor	$55
Variable manufacturing overhead	$5
Variable selling and administrative	$9
Fixed costs:	
Fixed manufacturing overhead	$51,800
Fixed selling and administrative	$66,500

91. What is the unit product cost for the month under variable costing?
    A) $107
    B) $98
    C) $112
    D) $121

    Answer: B Level: Easy LO: 1

92. The total contribution margin for the month under the variable costing approach is:
    A) $67,200
    B) $101,500
    C) $119,000
    D) $150,500

    Answer: C Level: Medium LO: 2

93. What is the total period cost for the month under the variable costing approach?
    A) $149,800
    B) $98,000
    C) $51,800
    D) $118,300

    Answer: A Level: Hard LO: 1

94. What is the net operating income for the month under variable costing?
    A) $2,800
    B) $700
    C) ($18,900)
    D) $3,500

    Answer: B Level: Medium LO: 2

Use the following to answer questions 95-98:

Haas Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$99
Units in beginning inventory	0
Units produced	2,400
Units sold	2,100
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$12
Direct labor	$57
Variable manufacturing overhead	$7
Variable selling and administrative	$10
Fixed costs:	
Fixed manufacturing overhead	$19,200
Fixed selling and administrative	$2,100

95. What is the unit product cost for the month under variable costing?
    A) $94
    B) $84
    C) $76
    D) $86

    Answer: C Level: Easy LO: 1

96. The total contribution margin for the month under the variable costing approach is:
    A) $48,300
    B) $27,300
    C) $8,100
    D) $31,500

    Answer: B Level: Medium LO: 2

97. What is the total period cost for the month under the variable costing approach?
    A) $23,100
    B) $42,300
    C) $19,200
    D) $21,300

    Answer: B Level: Hard LO: 1

98. What is the net operating income for the month under variable costing?
    A) $2,400
    B) ($16,800)
    C) $8,400
    D) $6,000

    Answer: D Level: Medium LO: 2

Use the following to answer questions 99-100:

Illa Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$131
Units in beginning inventory	0
Units produced	5,700
Units sold	5,400
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$46
Direct labor	$25
Variable manufacturing overhead	$6
Variable selling and administrative	$7
Fixed costs:	
Fixed manufacturing overhead	$193,800
Fixed selling and administrative	$43,200

99. What is the unit product cost for the month under variable costing?
    A) $111
    B) $118
    C) $77
    D) $84

    Answer: C Level: Easy LO: 1

100. What is the net operating income for the month under variable costing?
    A) $10,200
    B) $27,000
    C) ($6,300)
    D) $16,800

    Answer: D Level: Medium LO: 2

Use the following to answer questions 101-102:

Ibushi Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$117
Units in beginning inventory	0
Units produced	7,900
Units sold	7,600
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$29
Direct labor	$37
Variable manufacturing overhead	$4
Variable selling and administrative	$8
Fixed costs:	
Fixed manufacturing overhead	$205,400
Fixed selling and administrative	$91,200

101. What is the unit product cost for the month under variable costing?
A) $104
B) $70
C) $78
D) $96

Answer: B Level: Easy LO: 1

102. What is the net operating income for the month under variable costing?
A) ($21,200)
B) $7,600
C) $7,800
D) ($200)

Answer: D Level: Medium LO: 2

Use the following to answer questions 103-104:

Johnston Company manufactures a single product. The company has supplied the following data:

Selling price	$30
Variable costs per unit:	
Production	$8
Selling and administrative	$5
Fixed costs in total:	
Production	$80,000
Selling and administrative	$60,000

Last year there was no beginning inventory. During the year, 20,000 units were produced and 17,000 units were sold.

103. Under absorption costing, the unit product cost would be:
A) $20
B) $12
C) $13
D) $8

Answer: B Level: Easy LO: 1

104. The company's net operating income last year under variable costing would be:
A) $110,000
B) $149,000
C) $161,000
D) $170,000

Answer: B Level: Medium LO: 2

Use the following to answer questions 105-107:

The following data were provided by Rider, Inc, which produces a single product:

Units in beginning inventory	0
Units produced	5,000
Units sold	4,500
Variable costs per unit:	
Production	$10
Selling and administrative	$4
Fixed costs, in total:	
Production	$15,000
Selling and administrative	$10,000

105. Under variable costing, the unit product cost is:
A) $14
B) $13
C) $10
D) $16

Answer: C Level: Easy LO: 1

106. Under absorption costing, the unit product cost is:
A) $19
B) $13
C) $10
D) $14

Answer: B Level: Easy LO: 1

107. For the year in question, one would expect the net operating income under absorption costing to be:
A) higher than the net operating income under variable costing.
B) lower than the net operating income under variable costing.
C) the same as the net operating income under variable costing.
D) none of these.

Answer: A Level: Easy LO: 3

Use the following to answer questions 108-110:

Rebel Company manufactures a single product and has the following cost structure:

Variable costs per unit:	
Production	$5
Selling and administrative	$3
Fixed costs in total:	
Production	$32,000
Selling and administrative	$16,000

Last year there were no beginning inventories, 8,000 units were produced, and 7,800 units were sold.

108. Under variable costing, the unit product cost would be:
A) $5
B) $8
C) $9
D) $11

Answer: A Level: Easy LO: 1

109. The carrying value on the balance sheet of the ending inventory under variable costing would be:
A) $1,400 higher than under absorption costing.
B) $1,400 less than under absorption costing.
C) $800 less than under absorption costing.
D) the same as under absorption costing.

Answer: C Level: Medium LO: 1

110. Under absorption costing, the cost of goods sold would be:
A) $62,400
B) $70,200
C) $71,000
D) $39,000

Answer: B Level: Medium LO: 2

Use the following to answer questions 111-112:

Bayat Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$82
Units in beginning inventory	0
Units produced	6,000
Units sold	5,700
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$46
Direct labor	$15
Variable manufacturing overhead	$3
Variable selling and administrative	$10
Fixed costs:	
Fixed manufacturing overhead	$30,000
Fixed selling and administrative	$5,700

111. What is the unit product cost for the month under variable costing?
A) $79
B) $64
C) $74
D) $69

Answer: B Level: Easy LO: 1

112. What is the unit product cost for the month under absorption costing?
A) $69
B) $74
C) $79
D) $64

Answer: A Level: Easy LO: 1

Use the following to answer questions 113-114:

Beanston Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$104
Units in beginning inventory	0
Units produced	2,800
Units sold	2,500
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$18
Direct labor	$44
Variable manufacturing overhead	$4
Variable selling and administrative	$6
Fixed costs:	
Fixed manufacturing overhead	$50,400
Fixed selling and administrative	$22,500

113. What is the unit product cost for the month under variable costing?
A) $90
B) $66
C) $72
D) $84

Answer: B Level: Easy LO: 1

114. What is the unit product cost for the month under absorption costing?
A) $66
B) $72
C) $90
D) $84

Answer: D Level: Easy LO: 1

Use the following to answer questions 115-116:

The following data were provided by Trusty Corp., which produces a single product:

	Year 1	*Year 2*	*Year 3*
Units produced	6,000	7,000	5,000
Units sold	6,000	6,000	6,000

The selling price per unit, variable costs per unit, and total fixed costs are the same for each year.

115. If variable costing is in use, one would expect:
A) net operating income to be erratic over the three-year period.
B) net operating income to be the same for each year.
C) the break-even point to be lower in Year 2 than in Year 3.
D) net operating income to be higher in Year 2 than in Year 1.

Answer: B Level: Medium LO: 2

116. Taking the three years together, one would expect total net operating income to be:
A) the same under either absorption or variable costing.
B) higher under absorption costing than under variable costing.
C) lower under absorption costing than under variable costing.
D) none of these.

Answer: A Level: Medium LO: 2

Use the following to answer questions 117-118:

Clifton Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$63
Units in beginning inventory	0
Units produced	1,500
Units sold	1,100
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$14
Direct labor	$15
Variable manufacturing overhead	$1
Variable selling and administrative	$7
Fixed costs:	
Fixed manufacturing overhead	$16,500
Fixed selling and administrative	$5,500

117. The total contribution margin for the month under the variable costing approach is:
A) $28,600
B) $36,300
C) $12,100
D) $24,200

Answer: A Level: Medium LO: 2

118. The total gross margin for the month under the absorption costing approach is:
A) $28,600
B) $24,200
C) $40,600
D) $11,000

Answer: B Level: Medium LO: 2

Use the following to answer questions 119-120:

Clissold Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$120
Units in beginning inventory	0
Units produced	3,900
Units sold	3,500
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$46
Direct labor	$47
Variable manufacturing overhead	$7
Variable selling and administrative	$4
Fixed costs:	
Fixed manufacturing overhead	$42,900
Fixed selling and administrative	$3,500

119. The total contribution margin for the month under the variable costing approach is:
A) $31,500
B) $13,100
C) $56,000
D) $70,000

Answer: C Level: Medium LO: 2

120. The total gross margin for the month under the absorption costing approach is:
A) $31,500
B) $56,000
C) $14,000
D) $75,900

Answer: A Level: Medium LO: 2

Use the following to answer questions 121-122:

Deac Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$159
Units in beginning inventory	0
Units produced	7,800
Units sold	7,700
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$47
Direct labor	$50
Variable manufacturing overhead	$2
Variable selling and administrative	$9
Fixed costs:	
Fixed manufacturing overhead	$304,200
Fixed selling and administrative	$84,700

121. What is the total period cost for the month under the variable costing approach?
A) $458,200
B) $388,900
C) $304,200
D) $154,000

Answer: A Level: Hard LO: 1

122. What is the total period cost for the month under the absorption costing approach?
A) $154,000
B) $304,200
C) $458,200
D) $84,700

Answer: A Level: Hard LO: 1

Use the following to answer questions 123-124:

Dealey Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$63
Units in beginning inventory	0
Units produced	4,600
Units sold	4,400
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$20
Direct labor	$16
Variable manufacturing overhead	$2
Variable selling and administrative	$4
Fixed costs:	
Fixed manufacturing overhead	$36,800
Fixed selling and administrative	$48,400

123. What is the total period cost for the month under the variable costing approach?
A) $66,000
B) $36,800
C) $102,800
D) $85,200

Answer: C Level: Hard LO: 1

124. What is the total period cost for the month under the absorption costing approach?
A) $102,800
B) $66,000
C) $36,800
D) $48,400

Answer: B Level: Hard LO: 1

Use the following to answer questions 125-128:

Gaines Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$74
Units in beginning inventory	0
Units produced	8,800
Units sold	8,600
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$12
Direct labor	$32
Variable manufacturing overhead	$2
Variable selling and administrative	$6
Fixed costs:	
Fixed manufacturing overhead	$176,000
Fixed selling and administrative	$8,600

125. The total contribution margin for the month under the variable costing approach is:
A) $13,200
B) $240,800
C) $68,800
D) $189,200

Answer: D Level: Medium LO: 2

126. The total gross margin for the month under the absorption costing approach is:
A) $189,200
B) $82,000
C) $68,800
D) $8,600

Answer: C Level: Medium LO: 2

127. What is the total period cost for the month under the variable costing approach?
A) $184,600
B) $176,000
C) $236,200
D) $60,200

Answer: C Level: Hard LO: 1

128. What is the total period cost for the month under the absorption costing approach?
A) $60,200
B) $8,600
C) $236,200
D) $176,000

Answer: A Level: Hard LO: 1

Use the following to answer questions 129-132:

Gadzuk Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$123
Units in beginning inventory	0
Units produced	1,900
Units sold	1,600
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$32
Direct labor	$55
Variable manufacturing overhead	$1
Variable selling and administrative	$6
Fixed costs:	
Fixed manufacturing overhead	$43,700
Fixed selling and administrative	$1,600

129. The total contribution margin for the month under the variable costing approach is:
A) $46,400
B) $2,700
C) $19,200
D) $56,000

Answer: A Level: Medium LO: 2

130. The total gross margin for the month under the absorption costing approach is:
A) $19,200
B) $46,400
C) $52,500
D) $8,000

Answer: A Level: Medium LO: 2

131. What is the total period cost for the month under the variable costing approach?
A) $43,700
B) $54,900
C) $45,300
D) $11,200

Answer: B Level: Hard LO: 1

132. What is the total period cost for the month under the absorption costing approach?
A) $1,600
B) $43,700
C) $11,200
D) $54,900

Answer: C Level: Hard LO: 1

Use the following to answer questions 133-134:

Eliason Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$72
Units in beginning inventory	0
Units produced	7,300
Units sold	7,200
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$12
Direct labor	$24
Variable manufacturing overhead	$3
Variable selling and administrative	$8
Fixed costs:	
Fixed manufacturing overhead	$138,700
Fixed selling and administrative	$36,000

133. What is the net operating income for the month under variable costing?
A) $7,200
B) $1,900
C) $5,300
D) $1,400

Answer: C Level: Medium LO: 2

134. What is the net operating income for the month under absorption costing?
A) $1,400
B) $1,900
C) $7,200
D) $5,300

Answer: C Level: Medium LO: 2

Use the following to answer questions 135-136:

Elgin Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$126
Units in beginning inventory	0
Units produced	1,400
Units sold	1,000
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$27
Direct labor	$49
Variable manufacturing overhead	$6
Variable selling and administrative	$9
Fixed costs:	
Fixed manufacturing overhead	$28,000
Fixed selling and administrative	$3,000

135. What is the net operating income for the month under variable costing?
A) $8,000
B) $4,000
C) $12,000
D) ($28,800)

Answer: B Level: Medium LO: 2

136. What is the net operating income for the month under absorption costing?
A) ($28,800)
B) $4,000
C) $12,000
D) $8,000

Answer: C Level: Medium LO: 2

Use the following to answer questions 137-138:

Kezner Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$105
Units in beginning inventory	500
Units produced	4,700
Units sold	4,900
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$14
Direct labor	$43
Variable manufacturing overhead	$1
Variable selling and administrative	$9
Fixed costs:	
Fixed manufacturing overhead	$173,900
Fixed selling and administrative	$9,800

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

137. What is the net operating income for the month under variable costing?
A) ($4,900)
B) $11,100
C) $14,100
D) $2,500

Answer: D Level: Medium LO: 2

138. What is the net operating income for the month under absorption costing?
A) $2,500
B) $14,100
C) $11,100
D) ($4,900)

Answer: D Level: Medium LO: 2

Use the following to answer questions 139-140:

Khidir Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$121
Units in beginning inventory	300
Units produced	3,200
Units sold	3,400
Units in ending inventory	100
Variable costs per unit:	
Direct materials	$45
Direct labor	$45
Variable manufacturing overhead	$1
Variable selling and administrative	$7
Fixed costs:	
Fixed manufacturing overhead	$70,400
Fixed selling and administrative	$6,800

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

139. What is the net operating income for the month under variable costing?
A) ($3,400)
B) $2,200
C) $1,000
D) $19,200

Answer: C Level: Medium LO: 2

140. What is the net operating income for the month under absorption costing?
A) ($3,400)
B) $19,200
C) $1,000
D) $2,200

Answer: A Level: Medium LO: 2

Essay Questions

141. HJ Turner Corporation produces a single product. Data concerning the company's operations last year appear below:

Units in beginning inventory	0
Units produced	10,000
Units sold	9,000
Selling price per unit	$60
Variable costs per unit:	
Direct materials	$15
Direct labor	$5
Variable manufacturing overhead	$2
Variable selling and administrative	$4
Fixed costs in total:	
Fixed manufacturing overhead	$200,000
Fixed selling and administrative	$70,000

Assume direct labor is a variable cost.

Required:
a. Compute the unit product cost under both absorption and variable costing.
b. Prepare an income statement for the year using absorption costing.
c. Prepare an income statement for the year using variable costing.
d. Prepare a report reconciling the difference in net operating income between absorption and variable costing for the year.

Level: Medium LO: 1,2,3

Answer:

a.

	Variable costing	*Absorption costing*
Direct materials	$15	$15
Direct labor	5	5
Variable manufacturing overhead	2	2
Fixed manufacturing overhead ($200,000 ÷ 10,000 units)	-	20
Unit product costs	$22	$42

b.

Sales		$540,000
Cost of goods sold:		
Beginning inventory	$ 0	
Add cost of goods manufactured @ $42	420,000	
Goods available for sale	420,000	
Less ending inventory @ $42	42,000	378,000
Gross margin		162,000
Selling and administrative expenses*		106,000
Net operating income		$ 56,000

* 9,000 units × $4 per unit variable plus $70,000 fixed.

c.

Sales		$540,000
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 0	
Add variable manufacturing costs @ $22	220,000	
Goods available for sale	220,000	
Less ending inventory @ $22	22,000	
Variable cost of goods sold	198,000	
Variable selling & admin. @ $4	36,000	234,000
Contribution margin		306,000
Less fixed expenses:		
Fixed manufacturing overhead	200,000	
Fixed selling & admin.	70,000	270,000
Net operating income		$ 36,000

d.

Variable costing net operating income	$36,000
Add fixed factory overhead deferred in inventory under absorption costing (1,000 units × $20 per unit)	20,000
Absorption costing net operating income	$56,000

142. Legaz Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$120
Units in beginning inventory	100
Units produced	3,900
Units sold	3,600
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$31
Direct labor	$54
Variable manufacturing overhead	$5
Variable selling and administrative	$8
Fixed costs:	
Fixed manufacturing overhead	$54,600
Fixed selling and administrative	$21,600

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

Required:

a. What is the unit product cost for the month under variable costing?
b. What is the unit product cost for the month under absorption costing?
c. Prepare an income statement for the month using the contribution format and the variable costing method.
d. Prepare an income statement for the month using the absorption costing method.
e. Reconcile the variable costing and absorption costing net operating incomes for the month.

Level: Hard LO: 1,2,3

Answer:
a. & b. Unit product costs

Variable costing:	
Direct materials	$31
Direct labor	54
Variable manufacturing overhead	5
Unit product cost	$90
Absorption costing:	
Direct materials	$ 31
Direct labor	54
Variable manufacturing overhead	5
Fixed manufacturing overhead	14
Unit product cost	$104

c. & d. Income statements

Variable costing income statement		
Sales		$432,000
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 9,000	
Add variable manufacturing costs	351,000	
Goods available for sale	360,000	
Less ending inventory	36,000	
Variable cost of goods sold	324,000	
Variable selling and administrative	28,800	352,800
Contribution margin		79,200
Less fixed expenses:		
Fixed manufacturing overhead	54,600	
Fixed selling and administrative	21,600	76,200
Net operating income		$ 3,000

Absorption costing income statement

Sales		$432,000
Cost of goods sold:		
Beginning inventory	$ 10,400	
Add cost of goods manufactured	405,600	
Goods available for sale	416,000	
Less ending inventory	41,600	374,400
Gross margin		57,600
Less selling and administrative expenses:		
Variable selling and administrative	28,800	
Fixed selling and administrative	21,600	50,400
Net operating income		$ 7,200

e. Reconciliation

Variable costing net operating income	$3,000
Add fixed manufacturing overhead costs deferred in inventory under absorption costing	4,200
Absorption costing net operating income	$7,200

143. Magnani Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$97
Units in beginning inventory	0
Units produced	6,600
Units sold	6,200
Units in ending inventory	400
Variable costs per unit:	
Direct materials	$40
Direct labor	$10
Variable manufacturing overhead	$4
Variable selling and administrative	$9
Fixed costs:	
Fixed manufacturing overhead	$184,800
Fixed selling and administrative	$12,400

Required:
a. What is the unit product cost for the month under variable costing?
b. What is the unit product cost for the month under absorption costing?
c. Prepare an income statement for the month using the contribution format and the variable costing method.
d. Prepare an income statement for the month using the absorption costing method.
e. Reconcile the variable costing and absorption costing net operating incomes for the month.

Level: Medium LO: 1,2,3

Answer:
a. & b. Unit product costs

Variable costing:	
Direct materials	$40
Direct labor	10
Variable manufacturing overhead	4
Unit product cost	$54
Absorption costing:	
Direct materials	$40
Direct labor	10
Variable manufacturing overhead	4
Fixed manufacturing overhead	28
Unit product cost	$82

c. & d. Income statements

Variable costing income statement

Sales		$601,400
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 0	
Add variable manufacturing costs	356,400	
Goods available for sale	356,400	
Less ending inventory	21,600	
Variable cost of goods sold	334,800	
Variable selling and administrative	55,800	390,600
Contribution margin		210,800
Less fixed expenses:		
Fixed manufacturing overhead	184,800	
Fixed selling and administrative	12,400	197,200
Net operating income		$13,600

Absorption costing income statement		
Sales		$601,400
Cost of goods sold:		
Beginning inventory	$ 0	
Add cost of goods manufactured	541,200	
Goods available for sale	541,200	
Less ending inventory	32,800	508,400
Gross margin		93,000
Less selling and administrative expenses:		
Variable selling and administrative	55,800	
Fixed selling and administrative	12,400	68,200
Net operating income		$ 24,800

e. Reconciliation	
Variable costing net operating income	$13,600
Add fixed manufacturing overhead costs deferred in inventory under absorption costing	11,200
Absorption costing net operating income	$24,800

144. Duif Company's absorption costing income statements for the last two years are presented below:

	Year 1	*Year 2*
Sales	$70,000	$90,000
Less cost of goods sold:		
Beginning inventory	0	6,000
Add cost of goods manufactured	48,000	48,000
Goods available for sale	48,000	54,000
Less ending inventory	6,000	0
Cost of goods sold	42,000	54,000
Gross margin	28,000	36,000
Less selling & admin. expenses	25,000	31,000
Net operating income	$ 3,000	$ 5,000

Data on units produced and sold in each of these years are given below:

	Year 1	*Year 2*
Units in beginning inventory	0	1,000
Units produced	8,000	8,000
Units sold	7,000	9,000

Fixed factory overhead totaled $16,000 in each year. This overhead was applied to products at a rate of $2 per unit. Variable selling and administrative expenses were $3 per unit sold.

Required:

a. Compute the unit product cost in each year under variable costing.
b. Prepare new income statements for each year using variable costing.
c. Reconcile the absorption costing and variable costing net operating income for each year.

Level: Medium LO: 1,2,3

Answer:

a. The unit product cost under variable costing can be determined by subtracting the fixed factory overhead rate per unit from the unit product cost under absorption costing.

Cost of goods sold, Year 1	$42,000
Divided by number of units sold	÷ 7,000 units
Absorption costing unit product cost	$6 per unit

Absorption costing unit product cost	$6
Less fixed portion	2
Variable costing unit product cost	$4

b.

	Year 1	*Year 2*
Sales	$70,000	$90,000
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	0	4,000
Add variable manufacturing costs @ $4	32,000	32,000
Goods available for sale	32,000	36,000
Less ending inventory @ $4	4,000	0
Variable cost of goods sold	28,000	36,000
Variable selling and administrative @ $3	21,000	27,000
Total variable expenses	49,000	63,000
Contribution margin	21,000	27,000
Less fixed expenses:		
Factory overhead	16,000	16,000
Selling and administrative*	4,000	4,000
Total fixed expenses	20,000	20,000
Net operating income	$ 1,000	$ 7,000

* Year 1: $25,000 – $3 × 7,000 = $4,000

c.

	Year 1	*Year 2*
Variable costing net operating income	$1,000	$7,000
Add fixed factory overhead deferred in inventory under absorption costing (1,000 units × $2 per unit)	2,000	
Less fixed factory overhead released from inventory under absorption costing (1,000 units × $2 per unit)		(2,000)
Absorption costing net operating income	$3,000	$5,000

145. Hanks Company produces a single product. Operating data for the company and its absorption costing income statements for the last two years are presented below:

	Year 1	*Year 2*
Units in beginning inventory	0	1,000
Units produced	9,000	9,000
Units sold	8,000	10,000

	Year 1	*Year 2*
Sales	$80,000	$100,000
Less cost of goods sold:		
Beginning inventory	0	6,000
Add cost of goods manufactured	54,000	54,000
Goods available for sale	54,000	60,000
Less ending inventory	6,000	0
Cost of goods sold	48,000	60,000
Gross margin	32,000	40,000
Less selling & admin. expenses	28,000	30,000
Net operating income	$ 4,000	$ 10,000

Variable manufacturing costs are $4 per unit. Fixed factory overhead totals $18,000 in each year. This overhead was applied at a rate of $2 per unit. Variable selling and administrative expenses were $1 per unit sold.

Required:

a. What was the unit product cost in each year under variable costing?
b. Prepare new income statements for each year using variable costing.
c. Reconcile the absorption costing and variable costing net operating income for each year.

Level: Medium LO: 1,2,3

Answer:

a. The manufacturing cost of $4 per unit is the unit product cost under variable costing in both years.

b.

	Year 1	*Year 2*
Sales	$80,000	$100,000
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	0	4,000
Add variable manufacturing costs @ $4	36,000	36,000
Goods available for sale	36,000	40,000
Less ending inventory @ $4	4,000	0
Variable cost of goods sold	32,000	40,000
Variable selling and administrative @ $1	8,000	10,000
Total variable expenses	40,000	50,000
Contribution margin	40,000	50,000
Less fixed expenses:		
Factory overhead	18,000	18,000
Selling and administrative*	20,000	20,000
Total fixed expenses	38,000	38,000
Net operating income	$ 2,000	$ 12,000

* Year 1: $28,000 – $1 × 8,000 = $20,000

c.

	Year 1	*Year 2*
Variable costing net operating income	$2,000	$12,000
Add fixed factory overhead deferred in inventory under absorption costing (1,000 units × $2 per unit)	2,000	
Less fixed factory overhead released from inventory under absorption costing (1,000 units × $2 per unit)		(2,000)
Absorption costing net operating income	$4,000	$10,000

146. Pacher Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$155
Units in beginning inventory	100
Units produced	4,500
Units sold	4,300
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$28
Direct labor	$49
Variable manufacturing overhead	$7
Variable selling and administrative	$7
Fixed costs:	
Fixed manufacturing overhead	$175,500
Fixed selling and administrative	$81,700

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

Required:

a. What is the unit product cost for the month under variable costing?
b. Prepare an income statement for the month using the contribution format and the variable costing method.
c. Without preparing an income statement, determine the absorption costing net operating income for the month. (Hint: Use the reconciliation method.)

Level: Hard LO: 1,2,3

Answer:

a. Variable costing unit product cost

Direct materials	$28
Direct labor	49
Variable manufacturing overhead	7
Unit product cost	$84

b. Variable costing income statement

Sales		$666,500
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 8,400	
Add variable manufacturing costs	378,000	
Goods available for sale	386,400	
Less ending inventory	25,200	
Variable cost of goods sold	361,200	
Variable selling and administrative	30,100	391,300
Contribution margin		275,200
Less fixed expenses:		
Fixed manufacturing overhead	175,500	
Fixed selling and administrative	81,700	257,200
Net operating income		$ 18,000

c. Computation of absorption costing net operating income

Fixed manufacturing overhead per unit	$39.00
Change in inventories (units)	200
Variable costing net operating income	$18,000
Add fixed manufacturing overhead costs deferred in inventory under absorption costing	7,800
Absorption costing net operating income	$25,800

147. Qasimi Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$121
Units in beginning inventory	0
Units produced	4,300
Units sold	4,000
Units in ending inventory	300
Variable costs per unit:	
Direct materials	$44
Direct labor	$35
Variable manufacturing overhead	$7
Variable selling and administrative	$5
Fixed costs:	
Fixed manufacturing overhead	$34,400
Fixed selling and administrative	$72,000

Required:

a. What is the unit product cost for the month under variable costing?
b. Prepare an income statement for the month using the contribution format and the variable costing method.
c. Without preparing an income statement, determine the absorption costing net operating income for the month. (Hint: Use the reconciliation method.)

Level: Medium LO: 1,2,3

Answer:

a. Variable costing unit product cost

Direct materials	$44
Direct labor	35
Variable manufacturing overhead	7
Unit product cost	$86

b. Variable costing income statement

Sales		$484,000
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 0	
Add variable manufacturing costs	369,800	
Goods available for sale	369,800	
Less ending inventory	25,800	
Variable cost of goods sold	344,000	
Variable selling and administrative	20,000	364,000
Contribution margin		120,000
Less fixed expenses:		
Fixed manufacturing overhead	34,400	
Fixed selling and administrative	72,000	106,400
Net operating income		$ 13,600

c. Computation of absorption costing net operating income

Fixed manufacturing overhead per unit	$8.00
Change in inventories (units)	300
Variable costing net operating income	$13,600
Add fixed manufacturing overhead costs deferred in inventory under absorption costing	2,400
Absorption costing net operating income	$16,000

148. Italia Espresso Machina Inc. produces a single product. Data concerning the company's operations last year appear below:

Units in beginning inventory	0
Units produced	2,000
Units sold	1,900
Selling price per unit	$100
Variable costs per unit:	
Direct materials	$30
Direct labor	$10
Variable manufacturing overhead	$5
Variable selling and administrative	$2
Fixed costs in total:	
Fixed manufacturing overhead	$40,000
Fixed selling and administrative	$60,000

Required:

a. Compute the unit product cost under both absorption and variable costing.
b. Prepare an income statement for the year using absorption costing.
c. Prepare an income statement for the year using variable costing.
d. Prepare a report reconciling the difference in net operating income between absorption and variable costing for the year.

Level: Medium LO: 1,2

Answer:

a.

	Variable costing	*Absorption costing*
Direct materials	$30	$30
Direct labor	10	10
Variable manufacturing overhead	5	5
Fixed manufacturing overhead ($40,000 ÷ 2,000 units)	-	20
Unit product cost	$45	$65

b.

Sales		$190,000
Less cost of goods sold:		
Beginning inventory	$ 0	
Add cost of goods manufactured @ $65	130,000	
Goods available for sale	130,000	
Less ending inventory @ $65	6,500	123,500
Gross margin		66,500
Less selling and administrative expenses*		63,800
Net operating income		$ 2,700

* 1,900 units × $2 per unit variable plus $60,000 fixed.

c.

Sales		$190,000
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 0	
Add variable manufacturing costs @ $45	90,000	
Goods available for sale	90,000	
Less ending inventory @ $45	4,500	
Variable cost of goods sold	85,500	
Variable selling & admin. @ $2	3,800	89,300
Contribution margin		100,700
Less fixed expenses:		
Fixed manufacturing overhead	40,000	
Fixed selling & admin.	60,000	100,000
Net operating income		$ 700

d.

Variable costing net operating income	$ 700
Add fixed factory overhead deferred in inventory under absorption costing (100 units × $20 per unit)	2,000
Absorption costing net operating income	$2,700

149. Netro Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$91
Units in beginning inventory	100
Units produced	1,800
Units sold	1,400
Units in ending inventory	500
Variable costs per unit:	
Direct materials	$49
Direct labor	$13
Variable manufacturing overhead	$2
Variable selling and administrative	$7
Fixed costs:	
Fixed manufacturing overhead	$14,400
Fixed selling and administrative	$7,000

The company produces the same number of units every month, although the sales in units vary from month to month. The company's variable costs per unit and total fixed costs have been constant from month to month.

Required:

a. Prepare an income statement for the month using the contribution format and the variable costing method.
b. Prepare an income statement for the month using the absorption costing method.

Level: Hard LO: 2

Answer:

a. Variable costing income statement

Sales		$127,400
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 6,400	
Add variable manufacturing costs	115,200	
Goods available for sale	121,600	
Less ending inventory	32,000	
Variable cost of goods sold	89,600	
Variable selling and administrative	9,800	99,400
Contribution margin		28,000
Less fixed expenses:		
Fixed manufacturing overhead	14,400	
Fixed selling and administrative	7,000	21,400
Net operating income		$ 6,600

b. Absorption costing income statement

Sales		$127,400
Less cost of goods sold:		
Beginning inventory	$ 7,200	
Add cost of goods manufactured	129,600	
Goods available for sale	136,800	
Less ending inventory	36,000	100,800
Gross margin		26,600
Less selling and administrative expenses:		
Variable selling and administrative	9,800	
Fixed selling and administrative	7,000	16,800
Net operating income		$ 9,800

150. Oakford Company, which has only one product, has provided the following data concerning its most recent month of operations:

Selling price	$143
Units in beginning inventory	0
Units produced	1,200
Units sold	1,000
Units in ending inventory	200
Variable costs per unit:	
Direct materials	$33
Direct labor	$52
Variable manufacturing overhead	$1
Variable selling and administrative	$7
Fixed costs:	
Fixed manufacturing overhead	$38,400
Fixed selling and administrative	$4,000

Required:

a. Prepare an income statement for the month using the contribution format and the variable costing method.
b. Prepare an income statement for the month using the absorption costing method.

Level: Medium LO: 2

Answer:

a. Variable costing income statement

Sales		$143,000
Less variable expenses:		
Variable cost of goods sold:		
Beginning inventory	$ 0	
Add variable manufacturing costs	103,200	
Goods available for sale	103,200	
Less ending inventory	17,200	
Variable cost of goods sold	86,000	
Variable selling and administrative	7,000	93,000
Contribution margin		50,000
Less fixed expenses:		
Fixed manufacturing overhead	38,400	
Fixed selling and administrative	4,000	42,400
Net operating income		$ 7,600

b. Absorption costing income statement

Sales		$143,000
Less cost of goods sold:		
Beginning inventory	$ 0	
Add cost of goods manufactured	141,600	
Goods available for sale	141,600	
Less ending inventory	23,600	118,000
Gross margin		25,000
Less selling and administrative expenses:		
Variable selling and administrative	7,000	
Fixed selling and administrative	4,000	11,000
Net operating income		$ 14,000

151. Vitamin T-Shirts, Inc. budgeted the following costs for its first year of manufacturing operations. These costs are based on a volume of 50,000 T-shirts produced and sold:

	Total variable cost per year	*Total fixed cost per year*
Direct materials	$36,000	–
Direct labor	$24,000	–
Manufacturing overhead	$60,000	$72,000
Selling and administrative	$12,000	$48,000

During the first year of operations, Vitamin actually produced 50,000 T-shirts but only sold 48,000 T-shirts. Actual costs did not fluctuate from the cost behavior patterns described above. The 48,000 T-shirts were sold for $10 per T-shirt.

Required:
Using the variable costing method, prepare Vitamin T-Shirts' income statement for the year.

Level: Medium LO: 2

Answer:

Vitamin T-Shirts, Inc.
Variable Costing Income Statement

Sales (48,000 × $10)		$480,000
Less variable expenses:		
Variable cost of goods sold *	$115,200	
Variable selling & administrative **	11,520	126,720
Contribution margin		353,280
Less fixed expenses:		
Fixed manufacturing overhead	72,000	
Fixed selling & administrative	48,000	120,000
Net operating income		$233,280

* [($36,000 + $24,000 + $60,000)/50,000] × 48,000
** ($12,000/50,000) × 48,000

Chapter 8 Activity Based Costing

True/False Questions

1. The costs of activities that are classified as unit-level should be proportional to the number of units produced.

   Answer: True Level: Easy LO: 1

2. Batch-level activities are performed each time a batch is handled or processed, regardless of how many units are in the batch.

   Answer: True Level: Easy LO: 1

3. Product-level activities relate to specific products and typically must be carried out regardless of how many batches are run or units of product are made.

   Answer: True Level: Easy LO: 1

4. Activity-based management seeks to eliminate waste by allocating costs to products that waste resources.

   Answer: False Level: Medium LO: 1

5. Activity-based costing may supplement, rather than replace, a company's formal cost accounting system.

   Answer: True Level: Easy LO: 1

6. In activity-based costing, nonmanufacturing costs as well as manufacturing costs may be assigned to products.

   Answer: True Level: Easy LO: 1

7. When activity-based costing is used for internal decision-making, the costs of idle capacity should be considered period costs that flow through to the income statement as an expense of the current period.

   Answer: True Level: Medium LO: 1

8. A transaction driver provides a simple count of the number of times that an activity occurs.

   Answer: True Level: Medium LO: 1

9. In activity-based costing, all manufacturing costs must be included in product costs.

   Answer: False Level: Medium LO: 1

10. The first-stage allocation in activity-based costing is the process by which overhead costs are assigned to activity cost pools.

    Answer: True Level: Easy LO: 2

11. The activity rates computed in activity-based costing can provide valuable clues concerning where there is waste and scope for improvement in an organization.

    Answer: True Level: Easy LO: 3

12. In the second-stage allocation in activity-based costing, costs that were not allocated in the first stage are assigned to the company's most profitable products.

    Answer: False Level: Medium LO: 4

13. If a product has a negative product margin (i.e., loss) according to an activity-based costing system, it should be dropped.

    Answer: False Level: Medium LO: 5

14. When a company implements activity-based costing system, manufacturing overhead cost is often shifted from low volume products to high volume products, with a higher unit cost resulting for the high volume products.

    Answer: False Level: Medium LO: 6

15. An action analysis report provides more detail about costs and how they might adjust to changes in activity than a conventional activity-based costing analysis.

    Answer: True Level: Easy LO: 7

Multiple Choice Questions

16. Which of the following costs should not be included in product costs for internal management reports that are used for decision-making?
    A) Costs of unit-level activities.
    B) Costs of batch-level activities.
    C) Costs of product-level activities.
    D) Costs of organization-sustaining activities.

    Answer: D Level: Medium LO: 1

17. Which of the following would probably be the most accurate measure of activity to use for allocating the costs associated with a factory's purchasing department?
    A) Machine-hours
    B) Direct labor-hours
    C) Number of orders processed
    D) Cost of materials purchased

    Answer: C Level: Medium LO: 1

18. Guerra Electronics manufactures a variety of electronic gadgets for use in the home. Which of the following would probably be the most accurate measure of activity to use for allocating the costs of inspecting the finished products at Guerra?
    A) Machine-hours
    B) Direct labor-hours
    C) Inspection time
    D) Number of inspections

    Answer: C Level: Hard LO: 1

19. The labor time required to assemble a product is an example of a:
    A) Unit-level activity.
    B) Batch-level activity.
    C) Product-level activity.
    D) Organization-sustaining activity.

    Answer: A Level: Easy LO: 1

20. Production order processing is an example of a:
    A) Unit-level activity.
    B) Batch-level activity.
    C) Product-level activity.
    D) Organization-sustaining activity.

    Answer: B Level: Medium LO: 1

21. Assembling a product is an example of a:
    A) Unit-level activity.
    B) Batch-level activity.
    C) Product-level activity.
    D) Organization-sustaining.

    Answer: A Level: Easy LO: 1

22. Setting up a machine to change from producing one product to another is an example of a:
    A) Unit-level activity.
    B) Batch-level activity.
    C) Product-level activity.
    D) Organization-sustaining activity.

    Answer: B Level: Medium LO: 1

23. Designing a new product is an example of a:
    A) Unit-level activity.
    B) Batch-level activity.
    C) Product-level activity.
    D) Organization-sustaining activity.

    Answer: C Level: Easy LO: 1

24. The plant manager's salary is an example of a:
    A) Unit-level activity.
    B) Batch-level activity.
    C) Product-level activity.
    D) Organization-sustaining activity.

    Answer: D Level: Medium LO: 1

25. Machining a part for a product is an example of a:
    A) Unit-level activity.
    B) Batch-level activity.
    C) Product-level activity.
    D) Organization-sustaining activity.

    Answer: A Level: Easy LO: 1

26. If substantial batch-level or product-level costs exist, then overhead allocation based on a measure of volume such as direct labor-hours alone:
    A) is a key aspect of the activity-based costing model.
    B) will systematically overcost high-volume products and undercost low-volume products.
    C) will systematically overcost low-volume products and undercost high-volume products.
    D) must be used for external financial reporting since activity-based costing cannot be used for external reporting purposes.

    Answer: B Level: Medium LO: 6

27. If a cost object such as a product or customer has a negative yellow margin, then:
    A) its red margin will be positive.
    B) its red margin may be either positive or negative.
    C) its red margin will be negative.
    D) its red margin will be zero.

    Answer: C Level: Medium LO: 7 Appendix: 8A

28. If a cost object such as a product or customer has a negative red margin, then:
    A) its green margin will be positive.
    B) its green margin may be positive, negative, or zero.
    C) its green margin will be negative.
    D) its green margin will be zero.

    Answer: B Level: Medium LO: 7 Appendix: 8A

29. If a cost object such as a product or customer has a positive yellow margin, then:
    A) its green margin will be positive.
    B) its green margin may be positive, negative, or zero.
    C) its green margin will be negative.
    D) its green margin will be zero.

    Answer: A Level: Medium LO: 7 Appendix: 8A

30. Hochberg Corporation uses an activity-based costing system with the following three activity cost pools:

Activity Cost Pool	*Total Activity*
Fabrication	30,000 machine-hours
Order processing	300 orders
Other	Not applicable

The Other activity cost pool is used to accumulate costs of idle capacity and organization-sustaining costs.

The company has provided the following data concerning its costs:

Wages and salaries	$340,000
Depreciation	160,000
Occupancy	220,000
Total	$720,000

The distribution of resource consumption across activity cost pools is given below:

	Activity Cost Pools			
	Fabrication	*Order Processing*	*Other*	*Total*
Wages and salaries	30%	60%	10%	100%
Depreciation	15%	50%	35%	100%
Occupancy	15%	55%	30%	100%

The activity rate for the Fabrication activity cost pool is closest to:
A) $5.30 per machine-hour
B) $3.60 per machine-hour
C) $7.20 per machine-hour
D) $4.80 per machine-hour

Answer: A Level: Medium LO: 2,3

31. Hettich Corporation uses an activity-based costing system with the following three activity cost pools:

Activity Cost Pool	*Total Activity*
Fabrication	20,000 machine-hours
Order processing	200 orders
Other	Not applicable

The Other activity cost pool is used to accumulate costs of idle capacity and organization-sustaining costs.

The company has provided the following data concerning its costs:

Wages and salaries	$480,000
Depreciation	120,000
Occupancy	200,000
Total	$800,000

The distribution of resource consumption across activity cost pools is given below:

	Activity Cost Pools			
	Fabrication	*Order Processing*	*Other*	*Total*
Wages and salaries	55%	20%	25%	100%
Depreciation	10%	45%	45%	100%
Occupancy	25%	40%	35%	100%

The activity rate for the Order Processing activity cost pool is closest to:
A) $1,400 per order
B) $1,600 per order
C) $1,150 per order
D) $800 per order

Answer: C Level: Medium LO: 2,3

32. Orzel Corporation has provided the following data concerning its overhead costs for the coming year:

Wages and salaries	$240,000
Depreciation	120,000
Rent	180,000
Total.....	$540,000

The company has an activity-based costing system with the following three activity cost pools and estimated activity for the coming year:

Activity Cost Pool	*Total Activity*
Assembly.....	10,000 labor-hours
Order processing.....	500 orders
Other.....	Not applicable

The Other activity cost pool does not have a measure of activity; it is used to accumulate costs of idle capacity and organization-sustaining costs.

The distribution of resource consumption across activity cost pools is given below:

	Activity Cost Pools			
	Assembly	*Order Processing*	*Other*	*Total*
Wages and salaries	30%	50%	20%	100%
Depreciation	15%	35%	50%	100%
Rent	5%	65%	30%	100%

The activity rate for the Assembly activity cost pool is closest to:
A) $2.70 per labor-hour
B) $9.00 per labor-hour
C) $9.90 per labor-hour
D) $16.20 per labor-hour

Answer: C Level: Medium LO: 2,3

33. Laguna Corporation has provided the following data concerning its overhead costs for the coming year:

Wages and salaries	$260,000
Depreciation	100,000
Rent	180,000
Total.....	$540,000

The company has an activity-based costing system with the following three activity cost pools and estimated activity for the coming year:

Activity Cost Pool	*Total Activity*
Assembly.....	50,000 labor-hours
Order processing.....	400 orders
Other.....	Not applicable

The Other activity cost pool does not have a measure of activity; it is used to accumulate costs of idle capacity and organization-sustaining costs.

The distribution of resource consumption across activity cost pools is given below:

	Activity Cost Pools			
	Assembly	*Order Processing*	*Other*	*Total*
Wages and salaries	60%	20%	20%	100%
Depreciation	5%	60%	35%	100%
Rent	30%	30%	40%	100%

The activity rate for the Order Processing activity cost pool is closest to:
A) $415 per order
B) $405 per order
C) $495 per order
D) $270 per order

Answer: A Level: Medium LO: 2,3

34. Poskey Corporation uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs and its activity based costing system:

Costs:

Wages and salaries	$400,000
Depreciation	160,000
Utilities	100,000
Total.....	$660,000

Distribution of resource consumption:

	Activity Cost Pools			
	Assembly	*Setting Up*	*Other*	*Total*
Wages and salaries	40%	40%	20%	100%
Depreciation	20%	35%	45%	100%
Utilities	25%	55%	20%	100%

How much cost, in total, would be allocated in the first-stage allocation to the Assembly activity cost pool?

A) $187,000
B) $264,000
C) $217,000
D) $165,000

Answer: C Level: Medium LO: 2

35. Ginger Corporation uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs and its activity based costing system:

Costs:

Wages and salaries	$360,000
Depreciation	140,000
Utilities	160,000
Total.....	$660,000

Distribution of resource consumption:

	Activity Cost Pools			
	Assembly	*Setting Up*	*Other*	*Total*
Wages and salaries	10%	80%	10%	100%
Depreciation	5%	50%	45%	100%
Utilities	15%	60%	25%	100%

How much cost, in total, would be allocated in the first-stage allocation to the Setting Up activity cost pool?

A) $528,000
B) $454,000
C) $418,000
D) $396,000

Answer: B Level: Medium LO: 2

36. Grandolfo Corporation uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs and its activity based costing system:

Costs:

Wages and salaries	$300,000
Depreciation	200,000
Utilities	140,000
Total.....	$640,000

Distribution of resource consumption:

	Activity Cost Pools			
	Assembly	*Setting Up*	*Other*	*Total*
Wages and salaries	45%	35%	20%	100%
Depreciation	20%	40%	40%	100%
Utilities	15%	55%	30%	100%

How much cost, in total, would be allocated in the first-stage allocation to the Other activity cost pool?

A) $192,000
B) $182,000
C) $128,000
D) $192,000

Answer: B Level: Medium LO: 2

37. Futter Corporation uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs:

Wages and salaries	$440,000
Depreciation	180,000
Occupancy	220,000
Total.....	$840,000

The distribution of resource consumption across the three activity cost pools is given below:

	Activity Cost Pools			
	Fabricating	*Order Processing*	*Other*	*Total*
Wages and salaries	55%	35%	10%	100%
Depreciation	20%	35%	45%	100%
Occupancy	10%	50%	40%	100%

How much cost, in total, would be allocated in the first-stage allocation to the Fabricating activity cost pool?

A) $84,000
B) $300,000
C) $238,000
D) $462,000

Answer: B Level: Medium LO: 2

38. Duerr Corporation uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs:

Wages and salaries	$400,000
Depreciation	180,000
Occupancy	200,000
Total.....	$780,000

The distribution of resource consumption across the three activity cost pools is given below:

	Activity Cost Pools			
	Fabricating	*Order Processing*	*Other*	*Total*
Wages and salaries	55%	20%	25%	100%
Depreciation	10%	50%	40%	100%
Occupancy	35%	40%	25%	100%

How much cost, in total, would be allocated in the first-stage allocation to the Order Processing activity cost pool?

A) $250,000
B) $286,000
C) $156,000
D) $312,000

Answer: A Level: Medium LO: 2

39. Grammer Corporation uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs:

Wages and salaries	$240,000
Depreciation	160,000
Occupancy	140,000
Total.....	$540,000

The distribution of resource consumption across the three activity cost pools is given below:

	Activity Cost Pools			
	Fabricating	*Order Processing*	*Other*	*Total*
Wages and salaries	30%	45%	25%	100%
Depreciation	20%	35%	45%	100%
Occupancy	5%	65%	30%	100%

How much cost, in total, would be allocated in the first-stage allocation to the Other activity cost pool?

A) $135,000
B) $174,000
C) $162,000
D) $180,000

Answer: B Level: Medium LO: 2

40. Radakovich Corporation has provided the following data from its activity-based costing system:

Activity Cost Pool	*Total Cost*	*Total Activity*	
Assembly	$436,240	28,000	machine-hours
Processing orders	$60,896	1,600	orders
Inspection	$82,767	1,410	inspection-hours

The company makes 230 units of product F60N a year, requiring a total of 480 machine-hours, 50 orders, and 30 inspection-hours per year. The product's direct materials cost is $12.70 per unit and its direct labor cost is $45.93 per unit. The product sells for $126.60 per unit.

According to the activity-based costing system, the product margin for product F60N is:
A) $6,251.70 per unit
B) $4,490.70 per unit
C) $6,393.70 per unit
D) $15,633.10 per unit

Answer: B Level: Medium LO: 3,4,5

41. Rosenbrook Corporation has provided the following data from its activity-based costing system:

Activity Cost Pool	*Total Cost*	*Total Activity*	
Assembly	$710,770	37,000	machine-hours
Processing orders	$39,690	1,800	orders
Inspection	$119,116	1,940	inspection-hours

Data concerning one of the company's products, Product H73N, appear below:

Selling price per unit	$125.10
Direct materials cost per unit	$34.94
Direct labor cost per unit	$49.21
Annual unit production and sales	460
Annual machine-hours	510
Annual orders	80
Annual inspections	10

According to the activity-based costing system, the product margin for product H73N is:

A) $7,275.90 per unit
B) $6,661.90 per unit
C) $18,837.00 per unit
D) $8,425.90 per unit

Answer: B Level: Medium LO: 3,4,5

42. Belsky Corporation has provided the following data from its activity-based costing system:

Activity Cost Pool	*Total Cost*	*Total Activity*	
Assembly	$313,490	29,000	machine-hours
Processing orders	$49,476	1,400	orders
Inspection	$73,882	1,060	inspection-hours

The company makes 490 units of product Q19S a year, requiring a total of 1,080 machine-hours, 60 orders, and 20 inspection-hours per year. The product's direct materials cost is $46.42 per unit and its direct labor cost is $20.22 per unit.

According to the activity-based costing system, the average cost of product Q19S is closest to:

A) $97.64 per unit
B) $66.64 per unit
C) $93.31 per unit
D) $94.79 per unit

Answer: A Level: Medium LO: 3,4

43. Ravelo Corporation has provided the following data from its activity-based costing system:

Activity Cost Pool	*Total Cost*	*Total Activity*	
Assembly	$498,520	44,000	machine-hours
Processing orders	$54,263	1,100	orders
Inspection	$77,589	1,110	inspection-hours

Data concerning the company's product L19B appear below:

Annual unit production and sales	430
Annual machine-hours	990
Annual number of orders	70
Annual inspection hours	20
Direct materials cost	$37.74 per unit
Direct labor cost	$10.45 per unit

According to the activity-based costing system, the average cost of product L19B is closest to:

A) $48.19 per unit
B) $82.31 per unit
C) $85.56 per unit
D) $77.53 per unit

Answer: C Level: Medium LO: 3,4

Use the following to answer questions 44-46:

Esmail Company is a wholesale distributor that uses activity-based costing for all of its overhead costs. The company has provided the following data concerning its annual overhead costs and its activity based costing system:

Overhead costs:	
Wages and salaries	$380,000
Other expenses	220,000
Total	$600,000

Distribution of resource consumption:

	Activity Cost Pools			
	Filling Orders	*Customer Support*	*Other*	*Total*
Wages and salaries	55%	35%	10%	100%
Other expenses	25%	55%	20%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The amount of activity for the year is as follows:

Activity Cost Pool	*Activity*
Filling orders	4,000 orders
Customer support	60 customers

44. What would be the total overhead cost per order according to the activity based costing system? In other words, what would be the overall activity rate for the filling orders activity cost pool? (Round to the nearest whole cent.)
    A) $60.00
    B) $66.00
    C) $82.50
    D) $37.50

    Answer: B Level: Medium LO: 2,3 Appendix: 8A

45. What would be the total overhead cost per customer according to the activity based costing system? In other words, what would be the overall activity rate for the customer support activity cost pool? (Round to the nearest whole dollar.)
    A) $3,500
    B) $5,500
    C) $4,233
    D) $4,500

    Answer: C Level: Medium LO: 2,3 Appendix: 8A

46. To the nearest whole dollar, how much wages and salaries cost would be allocated to a customer who made 6 orders in a year?
    A) $2,264
    B) $2,530
    C) $1,998
    D) $3,995

    Answer: B Level: Hard LO: 2,3,4,7 Appendix: 8A

Use the following to answer questions 47-49:

Eskenazy Company is a wholesale distributor that uses activity-based costing for all of its overhead costs. The company has provided the following data concerning its annual overhead costs and its activity based costing system:

Overhead costs:	
Wages and salaries	$580,000
Other expenses	120,000
Total	$700,000

Distribution of resource consumption:

	Activity Cost Pools			
	Filling Orders	*Customer Support*	*Other*	*Total*
Wages and salaries	15%	75%	10%	100%
Other expenses	55%	25%	20%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The amount of activity for the year is as follows:

Activity Cost Pool	*Activity*
Filling orders	2,000 orders
Customer support	20 customers

47. What would be the total overhead cost per order according to the activity based costing system? In other words, what would be the overall activity rate for the filling orders activity cost pool? (Round to the nearest whole cent.)
    A) $52.50
    B) $76.50
    C) $122.50
    D) $192.50

    Answer: B Level: Medium LO: 2,3 Appendix: 8A

48. What would be the total overhead cost per customer according to the activity based costing system? In other words, what would be the overall activity rate for the customer support activity cost pool? (Round to the nearest whole dollar.)
    A) $26,250
    B) $17,500
    C) $23,250
    D) $8,750

    Answer: C Level: Medium LO: 2,3 Appendix: 8A

49. To the nearest whole dollar, how much wages and salaries cost would be allocated to a customer who made 7 orders in a year?
    A) $22,055
    B) $17,682
    C) $13,309
    D) $26,618

    Answer: A Level: Hard LO: 2,3,4,7 Appendix: 8A

Use the following to answer questions 50-51:

Fornia Florist specializes in large floral bouquets for hotels and other commercial spaces. The company has provided the following data concerning its annual overhead costs and its activity based costing system:

Overhead costs:	
Wages and salaries	$ 70,000
Other expenses	60,000
Total	$130,000

Distribution of resource consumption:

	Activity Cost Pools			
	Making Bouquets	*Delivery*	*Other*	*Total*
Wages and salaries	70%	20%	10%	100%
Other expenses	45%	25%	30%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The amount of activity for the year is as follows:

Activity Cost Pool	*Activity*
Making bouquets	40,000 bouquets
Delivery	4,000 deliveries

50. What would be the total overhead cost per bouquet according to the activity based costing system? In other words, what would be the overall activity rate for the making bouquets activity cost pool? (Round to the nearest whole cent.)
    A) $1.46
    B) $1.90
    C) $1.87
    D) $2.28

    Answer: B Level: Medium LO: 2,3

51. What would be the total overhead cost per delivery according to the activity based costing system? In other words, what would be the overall activity rate for the deliveries activity cost pool? (Round to the nearest whole cent.)
    A) $7.25
    B) $7.31
    C) $8.13
    D) $6.50

    Answer: A Level: Medium LO: 2,3

Use the following to answer questions 52-53:

Foro Florist specializes in large floral bouquets for hotels and other commercial spaces. The company has provided the following data concerning its annual overhead costs and its activity based costing system:

Overhead costs:	
Wages and salaries	$ 80,000
Other expenses	40,000
Total	$120,000

Distribution of resource consumption:

	Activity Cost Pools			
	Making Bouquets	*Delivery*	*Other*	*Total*
Wages and salaries	50%	40%	10%	100%
Other expenses	60%	10%	30%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The amount of activity for the year is as follows:

Activity Cost Pool	*Activity*
Making bouquets	20,000 bouquets
Delivery	6,000 deliveries

52. What would be the total overhead cost per bouquet according to the activity based costing system? In other words, what would be the overall activity rate for the making bouquets activity cost pool? (Round to the nearest whole cent.)
    A) $3.00
    B) $3.20
    C) $3.30
    D) $3.60

    Answer: B Level: Medium LO: 2,3

53. What would be the total overhead cost per delivery according to the activity based costing system? In other words, what would be the overall activity rate for the deliveries activity cost pool? (Round to the nearest whole cent.)
    A) $8.00
    B) $5.00
    C) $6.00
    D) $2.00

    Answer: C Level: Medium LO: 2,3

Use the following to answer questions 54-56:

Dimaio Company uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs and its activity based costing system:

Costs:

Manufacturing overhead	$580,000
Selling and administrative expenses	240,000
Total	$820,000

Distribution of resource consumption:

	Activity Cost Pools			
	Order Size	*Customer Support*	*Other*	*Total*
Manufacturing overhead	50%	40%	10%	100%
Selling and administrative expenses	5%	75%	20%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

You have been asked to complete the first-stage allocation of costs to the activity cost pools.

54. How much cost, in total, would be allocated in the first-stage allocation to the Order Size activity cost pool?
    A) $302,000
    B) $41,000
    C) $225,500
    D) $410,000

    Answer: A Level: Easy LO: 2

55. How much cost, in total, would be allocated in the first-stage allocation to the Customer Support activity cost pool?
    A) $328,000
    B) $412,000
    C) $471,500
    D) $615,000

    Answer: B Level: Easy LO: 2

56. How much cost, in total, should NOT be allocated to orders and products in the second stage of the allocation process if the activity-based costing system is used for internal decision-making?
    A) $0
    B) $106,000
    C) $82,000
    D) $164,000

    Answer: B Level: Medium LO: 2

Use the following to answer questions 57-59:

Dige Company uses an activity-based costing system with three activity cost pools. The company has provided the following data concerning its costs and its activity based costing system:

Costs:

Manufacturing overhead	$480,000
Selling and administrative expenses	220,000
Total	$700,000

Distribution of resource consumption:

	Activity Cost Pools			
	Order Size	*Customer Support*	*Other*	*Total*
Manufacturing overhead	50%	40%	10%	100%
Selling and administrative expenses	30%	50%	20%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

You have been asked to complete the first-stage allocation of costs to the activity cost pools.

57. How much cost, in total, would be allocated in the first-stage allocation to the Order Size activity cost pool?
    A) $280,000
    B) $306,000
    C) $350,000
    D) $210,000

    Answer: B Level: Easy LO: 2

58. How much cost, in total, would be allocated in the first-stage allocation to the Customer Support activity cost pool?
    A) $315,000
    B) $280,000
    C) $302,000
    D) $350,000

    Answer: C Level: Easy LO: 2

59. How much cost, in total, should NOT be allocated to orders and products in the second stage of the allocation process if the activity-based costing system is used for internal decision-making?
    A) $92,000
    B) $0
    C) $70,000
    D) $140,000

    Answer: A Level: Medium LO: 2

Use the following to answer questions 60-62:

Njombe Corporation manufactures a variety of products. In the past, Njombe has been using a traditional costing system in which the predetermined overhead rate was 150% of direct labor cost. Selling prices had been set by multiplying total product cost by 200%. Sensing that this system was distorting costs and selling prices, Njombe has decided to switch to an activity-based costing system for manufacturing overhead costs using three activity cost pools. Selling prices are still to be set at 200% of unit product cost under the new system. Information on these cost pools for next year are as follows:

Activity Cost Pool	*Estimated Activity*		*Estimated Overhead Cost*
Machine Setups	400	Number of setups	$150,000
Quality Control.....	1,500	Number of inspections	$180,000
Other Overhead	30,000	Machine hours	$480,000

Information (on a per unit basis) related to three popular products at Njombe are as follows:

	Model #19	*Model #36*	*Model #58*
Direct material cost	$400	$540	$310
Direct labor cost	$810	$600	$220
Number of setups	2	3	1
Number of inspections	1	3	1
Number of machine hours.....	4	8	10

60. Under the traditional system, what would be the selling price of one unit of Model #36?
    A) $2,536
    B) $2,712
    C) $4,080
    D) $5,506

    Answer: C Level: Medium LO: 6

61. Under the activity-based costing system, what would be the selling price of one unit of Model #36?
    A) $2,536
    B) $2,712
    C) $4,080
    D) $5,506

    Answer: D Level: Medium LO: 3,4

62. In comparing the traditional system with the activity-based costing system, which of Njombe's Models had higher unit product costs under the traditional system?
    A) #19
    B) #58
    C) #19 and #58
    D) #36 and #58

    Answer: A Level: Hard LO: 6

Use the following to answer questions 63-66:

Acklin Company has two products: A and B. Annual production and sales are 600 units of Product A and 900 units of Product B. The company has traditionally used direct labor-hours as the basis for applying all manufacturing overhead to products. Product A requires 0.5 direct labor hours per unit and Product B requires 0.3 direct labor hours per unit. The total estimated overhead for next period is $63,322.

The company is considering switching to an activity-based costing system for the purpose of computing unit product costs for external reports. The new activity-based costing system would have three overhead activity cost pools—Activity 1, Activity 2, and General Factory—with estimated overhead costs and expected activity as follows:

	Estimated Overhead	*Expected Activity*		
Activity Cost Pool	*Cost*	*Product A*	*Product B*	*Total*
Activity 1.....	$18,900	700	200	900
Activity 2.....	15,631	1,000	100	1,100
General factory.....	28,791	300	270	570
Total	$63,322			

(Note: The General Factory activity cost pool's costs are allocated on the basis of direct labor hours.)

63. The predetermined overhead rate under the traditional costing system is closest to:
A) $21.00
B) $14.21
C) $111.09
D) $50.51

Answer: C Level: Medium LO: 6

64. The overhead cost per unit of Product A under the traditional costing system is closest to:
A) $10.50
B) $55.55
C) $25.26
D) $7.11

Answer: B Level: Medium LO: 6

65. The predetermined overhead rate (i.e., activity rate) for Activity 1 under the activity-based costing system is closest to:
A) $27.00
B) $94.50
C) $21.00
D) $70.36

Answer: C Level: Medium LO: 3

66. The overhead cost per unit of Product A under the activity-based costing system is closest to:
A) $25.26
B) $73.44
C) $42.21
D) $55.55

Answer: B Level: Hard LO: 3,4

Use the following to answer questions 67-68:

Abbe Company uses activity-based costing. The company has two products: A and B. The annual production and sales of Product A is 800 units and of Product B is 600 units. There are three activity cost pools, with estimated costs and expected activity as follows:

		Expected Activity		
Activity Cost Pool	*Estimated Cost*	*Product A*	*Product B*	*Total*
Activity 1.....	$17,460	600	600	1,200
Activity 2.....	$19,987	1,700	600	2,300
Activity 3.....	$29,884	400	120	520

67. The activity rate for Activity 2 is closest to:
    A) $11.76
    B) $8.69
    C) $29.27
    D) $33.31

    Answer: B Level: Medium LO: 3

68. The cost per unit of Product B is closest to:
    A) $25.90
    B) $11.49
    C) $34.73
    D) $48.09

    Answer: C Level: Hard LO: 3,4

Use the following to answer questions 69-70:

The controller of Hartis Company estimates the amount of materials handling overhead cost that should be allocated to the company's two products using the data that are given below:

	Wall Mirrors	*Specialty Windows*
Total expected units produced	8,000	7,000
Total expected material moves.....	300	900
Expected direct labor-hours per unit.....	5	7

The total materials handling cost for the year is expected to be $38,448.00.

69. If the materials handling cost is allocated on the basis of direct labor-hours, how much of the total materials handling cost should be allocated to the wall mirrors? (Round off your answer to the nearest whole dollar.)
    A) $19,696
    B) $16,020
    C) $19,224
    D) $17,280

    Answer: D Level: Easy LO: 6 Source: CMA, adapted

70. If the materials handling cost is allocated on the basis of material moves, how much of the total materials handling cost should be allocated to the specialty windows? (Round off your answer to the nearest whole dollar.)
    A) $18,752
    B) $19,224
    C) $22,428
    D) $28,836

    Answer: D Level: Easy LO: 3,4 Source: CMA, adapted

Use the following to answer questions 71-72:

The controller of Kleyman Company estimates the amount of materials handling overhead cost that should be allocated to the company's two products using the data that are given below:

	Wall Mirrors	*Specialty Windows*
Total expected units produced	4,000	3,000
Total expected material moves.....	500	400
Expected direct labor-hours per unit	7	6

The total materials handling cost for the year is expected to be $28,400.40.

71. If the materials handling cost is allocated on the basis of direct labor-hours, how much of the total materials handling cost should be allocated to the wall mirrors? (Round off your answer to the nearest whole dollar.)
    A) $15,293
    B) $16,176
    C) $17,287
    D) $14,200

    Answer: C Level: Easy LO: 6 Source: CMA, adapted

72. If the materials handling cost is allocated on the basis of material moves, how much of the total materials handling cost should be allocated to the specialty windows? (Round off your answer to the nearest whole dollar.)
    A) $12,622
    B) $13,108
    C) $12,224
    D) $14,200

    Answer: A Level: Easy LO: 3,4 Source: CMA, adapted

Use the following to answer questions 73-74:

In the past, Casiopia Hospital allocated all of its overhead costs to patients based on nursing time. Casiopia has decided to switch to an activity based costing system using three activity cost pools. Information related to the new system is as follows:

Activity Cost Pool	*Activity Measure*	*Estimated Overhead Cost*	*Estimated Activity*	
Registration	Number of patients	$75,000	1,000	patients
Patient care	Nursing time	$900,000	150,000	hours
Billing.....	Number of bills	$120,000	2,500	bills

Data concerning two patients follows:

Patient	*Nursing time*	*Number of bills*
Wells	100 hours	2
Muncie.....	60 hours	3

73. Under the new activity-based costing system, how much overhead cost would be assigned to each patient?

	Wells	*Muncie*
A)	$696	$504
B)	$723	$483
C)	$730	$438
D)	$771	$579

    Answer: D Level: Medium LO: 3,4

74. To determine a price for its services, Casiopia Hospital takes the total cost assigned to a patient and multiplies that number by two. Compared to the old system, which patients above will be charged more under the new activity-based costing system?
    A) neither patient will be charged more
    B) Wells
    C) Muncie
    D) both Wells and Muncie

    Answer: D Level: Hard LO: 3,4

Use the following to answer questions 75-76:

Abrams Company uses activity-based costing. The company has two products: A and B. The annual production and sales of Product A is 300 units and of Product B is 1,000 units. There are three activity cost pools, with estimated costs and expected activity as follows:

		Expected Activity		
Activity Cost Pool	*Estimated Cost*	*Product A*	*Product B*	*Total*
Activity 1.....	$7,356	200	200	400
Activity 2.....	$30,555	1,400	700	2,100
Activity 3.....	$16,169	90	300	390

75. The activity rate for Activity 3 is closest to:
    A) $53.906
    B) $138.67
    C) $41.46
    D) $18.71

    Answer: C Level: Medium LO: 3

76. The cost per unit of Product A is closest to:
    A) $41.60
    B) $92.60
    C) $12.44
    D) $68.00

    Answer: B Level: Hard LO: 3,4

Use the following to answer questions 77-78:

Anesni Corporation uses activity-based costing to determine product costs for external financial reports. The company has provided the following data concerning its activity-based costing system:

Activity Cost Pools (and Activity Measures)	*Estimated Overhead Cost*
Machine related (machine-hours)	$242,100
Batch setup (setups)	$713,900
General factory (direct labor-hours).....	$256,500

	Expected Activity		
Activity Cost Pools	*Total*	*Product X*	*Product Y*
Machine related.....	9,000	6,000	3,000
Batch setup.....	11,000	6,000	5,000
General factory.....	9,000	1,000	8,000

77. The activity rate for the batch setup activity cost pool is closest to:
    A) $142.80
    B) $64.90
    C) $110.20
    D) $119.00

    Answer: B Level: Medium LO: 3

78. Assuming that actual activity turns out to be the same as expected activity, the total amount of overhead cost allocated to Product X would be closest to:
    A) $606,250
    B) $579,300
    C) $714,000
    D) $661,000

    Answer: B Level: Medium LO: 3,4

Use the following to answer questions 79-80:

Andry Corporation uses activity-based costing to determine product costs for external financial reports. The company has provided the following data concerning its activity-based costing system:

Activity Cost Pools (and Activity Measures)	*Estimated Overhead Cost*
Machine related (machine-hours)	$177,000
Batch setup (setups)	$453,600
General factory (direct labor-hours).....	$227,000

	Expected Activity		
Activity Cost Pools	*Total*	*Product X*	*Product Y*
Machine related.....	10,000	7,000	3,000
Batch setup.....	7,000	5,000	2,000
General factory.....	10,000	6,000	4,000

79. The activity rate for the batch setup activity cost pool is closest to:
    A) $122.50
    B) $226.80
    C) $90.70
    D) $64.80

    Answer: D Level: Medium LO: 3

80. Assuming that actual activity turns out to be the same as expected activity, the total amount of overhead cost allocated to Product X would be closest to:
    A) $613,000
    B) $454,000
    C) $428,800
    D) $584,100

    Answer: D Level: Medium LO: 3,4

Use the following to answer questions 81-83:

Carsten Wedding Fantasy Company makes very elaborate wedding cakes to order. The owner of the company has provided the following data concerning the activity rates in its activity-based costing system:

Activity Cost Pools	*Activity Rate*	
Size-related.....	$0.75	per guest
Complexity-related.....	$34.41	per tier
Order-related	$84.03	per order

The measure of activity for the size-related activity cost pool is the number of planned guests at the wedding reception. The greater the number of guests, the larger the cake. The measure of complexity is the number of tiers in the cake. The activity measure for the order-related cost pool is the number of orders. (Each wedding involves one order.) The activity rates include the costs of raw ingredients such as flour, sugar, eggs, and shortening. The activity rates do not include the costs of purchased decorations such as miniature statues and wedding bells, which are accounted for separately.

Data concerning two recent orders appear below:

	Ruise Wedding	*Karmo Wedding*
Number of reception guests	79	164
Number of tiers on the cake	2	4
Cost of purchased decorations for cake	$17.30	$56.86

81. Assuming that all of the costs listed above are avoidable costs in the event that an order is turned down, what amount would the company have to charge for the Ruise wedding cake to just break even?
    A) $229.40
    B) $84.03
    C) $277.57
    D) $17.30

    Answer: A Level: Medium LO: 4,5

82. Assuming that the company charges $485.85 for the Karmo wedding cake, what would be the overall margin on the order?
    A) $84.32
    B) $141.18
    C) $401.53
    D) $168.35

    Answer: A Level: Medium LO: 4,5

83. Suppose that the company decides that the present activity-based costing system is too complex and that all costs (except for the costs of purchased decorations) should be allocated on the basis of the number of guests. In that event, what would you expect to happen to the costs of cakes?
    A) The cost of cakes for receptions with more than the average number of guests would go down.
    B) The cost of cakes for receptions with fewer than the average number of guests would go down.
    C) The costs of all cakes would go down.
    D) The costs of all cakes would go up.

    Answer: B Level: Medium LO: 6

Use the following to answer questions 84-85:

Thoen Nuptial Bakery makes very elaborate wedding cakes to order. The company has an activity-based costing system with three activity cost pools. The activity rate for the Size-Related activity cost pool is $0.96 per guest. (The greater the number of guests, the larger the cake.) The activity rate for the Complexity-Related cost pool is $54.24 per tier. (Cakes with more tiers are more complex.) Finally, the activity rate for the Order-Related activity cost pool is $56.44 per order. (Each wedding involves one order for a cake.) The activity rates include the costs of raw ingredients such as flour, sugar, eggs, and shortening. The activity rates do not include the costs of purchased decorations such as miniature statues and wedding bells, which are accounted for separately.

Data concerning two recent orders appear below:

	Nie Wedding	*Strobl Wedding*
Number of reception guests	67	129
Number of tiers on the cake	3	5
Cost of purchased decorations for cake	$23.50	$31.31

84. Assuming that all of the costs listed above are avoidable costs in the event that an order is turned down, what amount would the company have to charge for the Nie wedding cake to just break even?
    A) $56.44
    B) $306.98
    C) $23.50
    D) $371.45

    Answer: B Level: Medium LO: 4

85. Assuming that the company charges $584.18 for the Strobl wedding cake, what would be the overall margin on the order?
    A) $157.83
    B) $101.39
    C) $132.70
    D) $482.79

    Answer: B Level: Medium LO: 4,5

Use the following to answer questions 86-88:

Grip Catering uses activity-based costing for its overhead costs. The company has provided the following data concerning the activity rates in its activity-based costing system:

Activity Cost Pools	*Preparing Meals*	*Arranging Functions*
Wages	$0.65	$145.00
Supplies	$0.40	$170.00
Other expenses	$0.20	$80.00

The number of meals served is the measure of activity for the Preparing Meals activity cost pool. The number of functions catered is used as the activity measure for the Arranging Functions activity cost pool.

Management would like to know whether the company made any money on a recent function at which 50 meals were served. The company catered the function for a fixed price of $22.00 per meal. The cost of the raw ingredients for the meals was $12.60 per meal. This cost is in addition to the costs of wages, supplies, and other expenses detailed above.

For the purposes of preparing action analyses, management has assigned ease of adjustment codes to the costs as follows: wages are classified as a Yellow cost; supplies and raw ingredients as a Green cost; and other expenses as a Red cost.

86. According to the activity-based costing system, what was the total cost (including the costs of raw ingredients) of the function mentioned above? (Round to the nearest whole dollar.)
A) $1,088
B) $1,288
C) $588
D) $438

Answer: A Level: Medium LO: 4 Appendix: 8A

87. Suppose an action analysis report is prepared for the function mentioned above. What would be the "red margin" in the action analysis report? (Round to the nearest whole dollar.)
A) $13
B) $(138)
C) $(88)
D) $163

Answer: A Level: Hard LO: 4,7 Appendix: 8A

88. Suppose an action analysis report is prepared for the function mentioned above. What would be the "yellow margin" in the action analysis report? (Round to the nearest whole dollar.)
A) $178
B) $228
C) $103
D) $283

Answer: C Level: Hard LO: 4,7 Appendix: 8A

Use the following to answer questions 89-91:

Grisim Catering uses activity-based costing for its overhead costs. The company has provided the following data concerning the activity rates in its activity-based costing system:

Activity Cost Pools	*Preparing Meals*	*Arranging Functions*
Wages.....	$0.75	$175.00
Supplies.....	$0.50	$280.00
Other expenses	$0.35	$130.00

The number of meals served is the measure of activity for the Preparing Meals activity cost pool. The number of functions catered is used as the activity measure for the Arranging Functions activity cost pool.

Management would like to know whether the company made any money on a recent function at which 130 meals were served. The company catered the function for a fixed price of $11.00 per meal. The cost of the raw ingredients for the meals was $6.90 per meal. This cost is in addition to the costs of wages, supplies, and other expenses detailed above.

For the purposes of preparing action analyses, management has assigned ease of adjustment codes to the costs as follows: wages are classified as a Yellow cost; supplies and raw ingredients as a Green cost; and other expenses as a Red cost.

89. According to the activity-based costing system, what was the total cost (including the costs of raw ingredients) of the function mentioned above? (Round to the nearest whole dollar.)
    A) $1,040
    B) $1,890
    C) $1,690
    D) $1,190

    Answer: C Level: Medium LO: 4 Appendix: 8A

90. Suppose an action analysis report is prepared for the function mentioned above. What would be the "red margin" in the action analysis report? (Round to the nearest whole dollar.)
    A) $(110)
    B) $(360)
    C) $(410)
    D) $(260)

    Answer: D Level: Hard LO: 4,7 Appendix: 8A

91. Suppose an action analysis report is prepared for the function mentioned above. What would be the "yellow margin" in the action analysis report? (Round to the nearest whole dollar.)
A) $(10)
B) $40
C) $95
D) $(85)

Answer: D Level: Hard LO: 4,7 Appendix: 8A

Essay Questions

92. Swagg Jewelry Corporation manufactures custom jewelry. In the past, Swagg has been using a traditional overhead allocation system based solely on direct labor hours. Sensing that this system was distorting costs and selling prices, Swagg has decided to switch to an activity-based costing system using three activity cost pools. Information on these activity cost pools are as follows:

Activity Cost Pool	*Estimated Activity*		*Estimated Overhead Cost*
Labor related.....	8,000	direct labor hours	$40,000
Machine related	12,500	machine hours	$50,000
Quality control.....	800	number of inspections	$12,000

Job #309 incurred $900 of direct material, 30 hours of direct labor at $40 per hour, 80 machine hours, and 5 inspections.

Required:
a. What is the cost of the job under the activity-based costing system?
b. Relative to the activity-based costing system, would Job #309 have been overcosted or undercosted under the traditional system and by how much?

Level: Medium LO: 1,3,4

Answer:
a. LR = $40,000/8,000 DLHs = $5/DLH; MR = $50,000/12,500 MHs = $4/MH; QC = $12,000/800 inspections = $15/inspection;
$900 + ($40 × 30) + ($5 × 30) + ($4 × 80) + ($15 × 5) = $2,645

b. Undercosted by $162.50; Total OH = $40,000 + $50,000 + $12,000 = $102,000; $102,000/8,000 DLHs = $12.75/DLH; Traditional = $12.75 × 30 = $382.50; Activity-based = $150 + $320 + $75 = $545; $545 - $382.50 = $162.50

93. Imai Draperies makes custom draperies for homes and businesses. The company uses an activity-based costing system for its overhead costs. The company has provided the following data concerning its annual overhead costs and its activity cost pools.

Overhead costs:

Production overhead....	$240,000
Office expense.....	160,000
Total.....	$400,000

Distribution of resource consumption:

Activity Cost Pools	*Making Drapes*	*Job Support*	*Other*	*Total*
Production overhead.....	35%	45%	20%	100%
Office expense.....	15%	55%	30%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The amount of activity for the year is as follows:

Activity Cost Pool	*Annual Activity*
Making drapes.....	4,000 yards
Job support	100 jobs
Other.....	Not applicable

Required:

a. Prepare the first-stage allocation of overhead costs to the activity cost pools by filling in the table below:

	Making Drapes	*Job Support*	*Other*	*Total*
Production overhead.....				
Office expense.....				
Total.....				

b. Compute the activity rates (i.e., cost per unit of activity) for the Making Drapes and Job Support activity cost pools by filling in the table below:

	Making Drapes	*Job Support*
Production overhead.....		
Office expense.....		
Total.....		

c. Prepare an action analysis report in good form of a job that involves making 53 yards of drapes and has direct materials and direct labor cost of $1,480. The sales revenue from this job is $5,200. For purposes of this action analysis report, direct materials and direct labor should be classified as a Green cost; production overhead as a Red cost; and office expense as a Yellow cost.

Level: Hard LO: 2,3,4,7 Appendix: 8A

Answer:

a. First-stage allocation

	Making Drapes	*Job Support*	*Other*	*Total*
Production overhead....	$ 84,000	$108,000	$48,000	$240,000
Office expense.....	24,000	88,000	48,000	160,000
Total.....	$108,000	$196,000	$96,000	$400,000
Activity.....	4,000 yards	100 jobs		

b. Activity rates (costs divided by activity)

Production overhead.....	$21.00	$1,080.00
Office expense.....	6.00	880.00
Total.....	$27.00	$1,960.00

c. Overhead cost of the job.

Activity	*Making Drapes* 53	*Job Support* 1	*Total*
Production overhead.....	$1,113.00	$1,080.00	$2,193.00
Office expense.....	318.00	880.00	1,198.00
Total.....	$1,431.00	$1,960.00	$3,391.00

Sales.....	$5,200
Green costs:	
Direct materials and labor	1,480
Green margin.....	3,720
Yellow costs:	
Office expense.....	1,198
Yellow margin.....	2,522
Red costs:	
Production overhead.....	2,193
Red margin	$ 329

94. Hastings Hardwood Floors installs oak and other hardwood floors in homes and businesses. The company uses an activity-based costing system for its overhead costs. The company has provided the following data concerning its annual overhead costs and its activity based costing system:

Overhead costs:

Production overhead....	$110,000
Office expense.....	130,000
Total.....	$240,000

Distribution of resource consumption:

Activity Cost Pools	*Installing Floors*	*Job Support*	*Other*	*Total*
Production overhead.....	50%	30%	20%	100%
Office expense.....	5%	65%	30%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The amount of activity for the year is as follows:

Activity Cost Pool	*Annual Activity*
Installing floors.....	400 squares
Job support	100 jobs
Other.....	Not applicable

A "square" is a measure of area that is roughly equivalent to 1,000 square feet.

Required:

a. Prepare the first-stage allocation of overhead costs to the activity cost pools by filling in the table below:

	Installing Floors	*Job Support*	*Other*	*Total*
Production overhead.....				
Office expense.....				
Total.....				

b. Compute the activity rates (i.e., cost per unit of activity) for the Installing Floors and Job Support activity cost pools by filling in the table below:

	Installing Floors	*Job Support*
Production overhead.....		
Office expense.....		
Total.....		

c. Compute the overhead cost, according to the activity-based costing system, of a job that involves installing 1.8 squares.

Level: Medium LO: 2,3,4,7 Appendix: 8A

Answer:

a. First-stage allocation

	Installing Floors	*Job Support*	*Other*	*Total*
Production overhead	$55,000	$ 33,000	$22,000	$110,000
Office expense	6,500	84,500	39,000	130,000
Total	$61,500	$117,500	$61,000	$240,000
Activity	400 squares	100 jobs		

b. Activity rates (costs divided by activity)

Production overhead	$137.50	$ 330.00
Office expense	16.25	845.00
Total	$153.75	$1,175.00

c. Overhead cost of the job.

Activity	*Installing Floors*	*Job Support*	*Total*
	1.8	1	
Production overhead	$247.50	$ 330.00	$ 577.50
Office expense	29.25	845.00	874.25
Total	$276.75	$1,175.00	$1,451.75

95. Goldbard Company, a wholesale distributor, uses activity-based costing for its overhead costs. The company has provided the following data concerning its annual overhead costs and its activity based costing system:

Overhead costs:

Wages and salaries	$540,000
Nonwage expenses	220,000
Total.....	$760,000

Distribution of resource consumption:

Activity Cost Pools	*Filling Orders*	*Product Support*	*Other*	*Total*
Wages and salaries	55%	35%	10%	100%
Nonwage expenses	15%	65%	20%	100%

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The amount of activity for the year is as follows:

Activity Cost Pool	*Annual Activity*
Filling orders	3,000 orders
Product support.....	30 products
Other.....	Not applicable

Required:

Compute the activity rates (i.e., cost per unit of activity) for the Filling Orders and Product Support activity cost pools by filling in the table below:

	Filling Orders	*Product Support*
Wages and salaries.....		
Nonwage expenses		
Total.....		

Level: Medium LO: 2,3,7 Appendix: 8A

Answer:
First-stage allocation

	Filling Orders	*Product Support*	*Other*	*Total*
Wages and salaries	$297,000	$189,000	$54,000	$540,000
Nonwage expenses	33,000	143,000	44,000	220,000
Total.....	$330,000	$332,000	$98,000	$760,000
Activity.....	3,000 orders	30 products		

Activity rates (costs divided by activity)

Wages and salaries	$ 99.00	$ 6,300
Nonwage expenses	11.00	4,767
Total.....	$110.00	$11,067

96. Fields & Maaner PLC, a consulting firm, uses an activity-based costing in which there are three activity cost pools. The company has provided the following data concerning its costs and its activity based costing system:

Costs:

Wages and salaries	$560,000
Travel expenses	140,000
Other expenses	140,000
Total.....	$840,000

Distribution of resource consumption:

Activity Cost Pools	*Working On Engagements*	*Business Development*	*Other*	*Total*
Wages and salaries.....	45%	25%	30%	100%
Travel expenses	60%	30%	10%	100%
Other expenses.....	30%	30%	40%	100%

Required:

a. How much cost, in total, would be allocated to the Working On Engagements activity cost pool?
b. How much cost, in total, would be allocated to the Business Development activity cost pool?
c. How much cost, in total, would be allocated to the Other activity cost pool?

Level: Easy LO: 2

Answer:
All three parts can be answered using a first-stage allocation of costs.

	Working On Engagements	*Business Development*	*Other*	*Total*
Wages and salaries ...	$252,000	$140,000	$168,000	$560,000
Travel expenses	84,000	42,000	14,000	140,000
Other expenses	42,000	42,000	56,000	140,000
Total.....	$378,000	$224,000	$238,000	$840,000

97. Duckhorn Housecleaning provides housecleaning services to its clients. The company uses an activity-based costing system for its overhead costs. The company has provided the following data from its activity-based costing system.

Activity Cost Pool	*Total Cost*	*Total Activity*
Cleaning.....	$645,576	72,700 hours
Job support	$129,546	5,400 jobs
Client support	$ 20,900	760 clients
Other.....	$110,000	Not applicable
Total.....	$906,022	

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

One particular client, the Lumbard family, requested 31 jobs during the year that required a total of 62 hours of housecleaning. For this service, the client was charged $1,620

Required:
a. Compute the activity rates (i.e., cost per unit of activity) for the activity cost pools. Round off all calculations to the nearest whole cent.
b. Using the activity-based costing system, compute the customer margin for the Lumbard family. Round off all calculations to the nearest whole cent.
c. Assume the company decides instead to use a traditional costing system in which ALL costs are allocated to customers on the basis of cleaning hours. Compute the margin for the Lumbard family. Round off all calculations to the nearest whole cent.

Level: Medium LO: 3,4,5,6

Answer:

a. The computation of the activity rates follow:

	Total Cost	*Total Activity*		*Activity Rates*	
Cleaning.....	$645,576	72,700	hours	$8.88	per hour
Job support	$129,546	5,400	jobs	$23.99	per job
Client support	$20,900	760	clients	$27.50	per client

b. The customer margin for the family is computed as follows:

Client charges		$1,620.00
Costs:		
Cleaning	$550.56	
Job support	743.69	
Client support	27.50	1,321.75
Customer margin		$ 298.25

Computations for costs:
Cleaning: 62 hours × $8.88 per hour = $550.56
Job support: 31 jobs × $23.99 per job = $743.69
Client support: 1 client × $27.50 per client = $27.50

c. The margin if all costs are allocated on the basis of cleaning hours:
Predetermined overhead rate = $906,022 ÷ 72,700 hours = $12.46 per hour

Client charges	$1,620.00
Allocated costs*	772.52
Customer margin	$ 847.48

* 62 hours × $12.46 per hour = $772.52

98. The Thornes Cleaning Brigade Company provides housecleaning services to its clients. The company uses an activity-based costing system for its overhead costs. The company has provided the following data from its activity-based costing system.

Activity Cost Pool	*Total Cost*	*Total Activity*
Cleaning.....	$274,170	48,100 hours
Job support	$99,066	5,700 jobs
Client support	$9,796	620 clients
Other.....	$110,000	Not applicable
Total.....	$493,032	

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

One particular client, the Lazzara family, requested 37 jobs during the year that required a total of 222 hours of housecleaning. For this service, the client was charged $2,350

Required:

a. Using the activity-based costing system, compute the customer margin for the Lazzara family. Round off all calculations to the nearest whole cent.
b. Assume the company decides instead to use a traditional costing system in which ALL costs are allocated to customers on the basis of cleaning hours. Compute the margin for the Lazzara family. Round off all calculations to the nearest whole cent.

Level: Medium LO: 3,4,5,6

Answer:

a. The first step is to compute activity rates:

	Total Cost	*Total Activity*		*Activity Rates*	
Cleaning	$274,170	48,100	hours	$5.70	per hour
Job support	$99,066	5,700	jobs	$17.38	per job
Client support	$9,796	620	clients	$15.80	per client

The customer margin for the family is computed as follows:

Client charges		$2,350.00
Costs:		
Cleaning	$1,265.40	
Job support	643.06	
Client support	15.80	1,924.26
Customer margin		$ 425.74

Computations for costs:
Cleaning: 222 hours × $5.70 per hour = $1,265.40
Job support: 37 jobs × $17.38 per job = $643.06
Client support: 1 client × $15.80 per client = $15.80

b. The margin if all costs are allocated on the basis of cleaning hours:
Predetermined overhead rate = $493,032 ÷ 48,100 hours = $10.25 per hour

Client charges	$2,350.00
Allocated costs*	2,275.50
Customer margin	$ 74.50

* 222 hours × $10.25 per hour = $2,275.50

99. Jardon Painting paints the interiors and exteriors of homes and commercial buildings. The company uses an activity-based costing system for its overhead costs. The company has provided the following data concerning its activity-based costing system.

Activity Cost Pool	*Activity Measure*	*Annual Activity*
Painting overhead.....	Square meters	10,000 square meters
Job support	Jobs	200 jobs
Other.....	None	Not applicable

The "Other" activity cost pool consists of the costs of idle capacity and organization-sustaining costs.

The company has already finished the first stage of the allocation process in which costs were allocated to the activity cost centers. The results are listed below:

	Painting	*Job Support*	*Other*	*Total*
Painting overhead.....	$ 99,000	$ 77,000	$44,000	$220,000
Office expense.....	14,000	84,000	42,000	140,000
Total.....	$113,000	$161,000	$86,000	$360,000

Required:

a. Compute the activity rates (i.e., cost per unit of activity) for the Painting and Job Support activity cost pools by filling in the table below. Round off all calculations to the nearest whole cent.

		Job
	Painting	*Support*
Painting overhead.....		
Office expense.....		
Total		

b. Prepare an action analysis report in good form of a job that involves painting 69 square meters and has direct materials and direct labor cost of $2,190. The sales revenue from this job is $3,400. For purposes of this action analysis report, direct materials and direct labor should be classified as a Green cost; painting overhead as a Red cost; and office expense as a Yellow cost.

Level: Medium LO: 3,4,7 Appendix: 8A

Answer:

a. Activity rates (costs divided by activity)

	Painting	*Job Support*
Painting overhead	$ 9.90	$385.00
Office expense	1.40	420.00
Total	$11.30	$805.00

b. Overhead cost of the job.

	Painting	*Job Support*	*Total*
Activity	69	1	
Painting overhead	$683.10	$385.00	$1,068.10
Office expense	96.60	420.00	516.60
Total	$779.70	$805.00	$1,584.70

Sales	$3,400.00
Green costs:	
Direct materials and labor	2,190.00
Green margin	1,210.00
Yellow costs:	
Office expense	516.60
Yellow margin	693.40
Red costs:	
Painting overhead	1,068.10
Red margin	$ (374.70)

100. Cabalo Company manufactures two products, Product C and Product D. The company estimated it would incur $130,890 in manufacturing overhead costs during the current period. Overhead currently is applied to the products on the basis of direct labor hours. Data concerning the current period's operations appear below:

	Product C	*Product D*
Estimated unit production	400 units	1,200 units
Direct labor hours per unit	0.70 hour	1.20 hours
Direct materials cost per unit	$10.70	$16.70
Direct labor cost per unit	$11.20	$19.20

Required:

a. Compute the predetermined overhead rate under the current method, and determine the unit product cost of each product for the current year.
b. The company is considering using an activity-based costing system to compute unit product costs for external financial reports instead of its traditional system based on direct labor hours. The activity-based costing system would use three activity cost pools. Data relating to these activities for the current period are given below:

	Estimated Overhead	*Expected Activity*		
Activity Cost Pool	*Costs*	*Product C*	*Product D*	*Total*
Machine setups	$ 13,570	100	130	230
Purchase orders.....	91,520	810	1,270	2,080
General factory	25,800	280	1,440	1,720
	$130,890			

Determine the unit product cost of each product for the current period using the activity-based costing approach.

Level: Hard LO: 3,4

Answer:

a. The expected total direct labor hours during the period are computed as follows:

Product C: 400 units × 0.7 hours per unit	280 hours
Product D: 1,200 units × 1.2 hours per unit	1,440 hours
Total direct labor hours	1,720 hours

Using these hours as a base, the predetermined overhead using direct labor hours would be:

Estimated overhead cost, $130,890 ÷ Estimated direct labor hours, 1,720
= $76.10/DLH

Using this overhead rate, the unit product costs are:

	Product C	*Product D*
Direct materials	$10.70	$ 16.70
Direct labor.....	11.20	19.20
Manufacturing overhead.....	53.27	91.32
Total unit product cost.....	$75.17	$127.22

b. The overhead rates for each activity cost pool are as follows:

	Estimated Overhead Costs	*Expected Activity*	*Overhead Rate*
Machine setups	$13,570	230	$59.00
Purchase orders.....	$91,520	2,080	$44.00
General factory	$25,800	1,720	$15.00

The overhead cost charged to each product is:

	Product C		*Product D*	
	Activity	*Amount*	*Activity*	*Amount*
Machine setups	100	$ 5,900	130	$ 7,670
Purchase orders.....	810	35,640	1,270	55,880
General factory	280	4,200	1,440	21,600
Total overhead cost		$45,740		$85,150

Overhead cost per unit:
Product C: $45,740 ÷ 400 units = $114.35 per unit
Product D: $85,150 ÷ 1,200 units = $70.96 per unit

Using activity based costing, the unit product cost of each product would be:

	Product C	*Product D*
Direct materials	$ 10.70	$ 16.70
Direct labor.....	11.20	19.20
Manufacturing overhead.....	114.35	70.96
Total unit product cost.....	$136.25	$106.86

101. Danno Company manufactures two products, Product F and Product G. The company expects to produce and sell 600 units of Product F and 6,000 units of Product G during the current year. The company uses activity-based costing to compute unit product costs for external reports. Data relating to the company's three activity cost pools are given below for the current year:

	Estimated Overhead	*Expected Activity*		
Activity Cost Pool	*Costs*	*Product F*	*Product G*	*Total*
Machine setups	$5,250	60	150	210
Purchase orders.....	$74,100	620	1,280	1,900
General factory	$89,880	840	12,000	12,840

Required:

Using the activity-based costing approach, determine the overhead cost per unit for each product.

Level: Medium LO: 3,4

Answer:
The overhead rates for each activity cost pool are as follows:

Activity Cost Pool	*Estimated Overhead Costs*	*Expected Activity*	*Overhead Rate*
Machine setups.....	$5,250	210	$25.00
Purchase orders.....	$74,100	1,900	$39.00
General factory.....	$89,880	12,840	$7.00

The overhead cost charged to each product is:

	Product F		*Product G*	
	Activity	*Amount*	*Activity*	*Amount*
Machine setups.....	60	$ 1,500	150	$ 3,750
Purchase orders.....	620	24,180	1,280	49,920
General factory.....	840	5,880	12,000	84,000
Total overhead cost		$31,560		$137,670

Overhead cost per unit:
Product F: $31,560 ÷ 600 units = $52.60 per unit
Product G: $137,670 ÷ 6,000 units = $22.945 per unit

Chapter 9 Profit Planning

True/False Questions

1. The sales budget is usually prepared before the production budget.

   Answer: True Level: Easy LO: 1,2,3

2. The cash budget is the starting point in preparing the master budget.

   Answer: False Level: Medium LO: 1,8

3. The first budget a company prepares in a master budget is the production budget.

   Answer: False Level: Medium LO: 1

4. One of the weaknesses of budgets is that they are of little value in uncovering potential bottlenecks in an organization.

   Answer: False Level: Medium LO: 1

5. One of the advantages of a self-imposed budget is that the person directly involved in an activity is more likely to be in a position to make good budget estimates.

   Answer: True Level: Easy LO: 1

6. The basic idea behind responsibility accounting is that top management is responsible for preparing detailed budgets by which the performance of middle and lower management will be evaluated.

   Answer: False Level: Easy LO: 1

7. Budgeting is a trade-off between planning and control in that increased use of budgeting will usually improve planning but will weaken control.

   Answer: False Level: Medium LO: 1

8. The sales budget often includes a schedule of expected cash collections.

   Answer: True Level: Easy LO: 2

9. Uncollectible amounts on credit sales to customers will be listed as cash outflows on the schedule of expected cash collections.

   Answer: False Level: Medium LO: 2

10. The number of units to be produced in a period can be determined by adding the expected sales to the desired ending inventory and then deducting the beginning inventory.

    Answer: True Level: Medium LO: 3

11. When preparing a direct materials budget, beginning inventory for raw materials should be added to production needs, and desired ending inventory should be subtracted to determine the amount of raw materials to be purchased.

    Answer: False Level: Medium LO: 4

12. The manufacturing overhead budget provides a schedule of all costs of production other than direct materials and direct labor.

    Answer: True Level: Easy LO: 6

13. Both variable and fixed manufacturing overhead costs are included in the selling and administrative expense budget.

    Answer: False Level: Medium LO: 7

14. On a cash budget, the total amount of budgeted cash payments for manufacturing overhead should not include any amounts for depreciation on factory equipment.

    Answer: True Level: Easy LO: 8

15. In zero-base budgeting, only changes from the prior budget must be justified.

    Answer: False Level: Easy LO: 11

Multiple Choice Questions

16. Which of the following budgets are prepared before the production budget?

	Direct Materials Budget	*Sales Budget*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: C Level: Medium LO: 1

17. Which of the following represents the normal sequence in which the below budgets are prepared?
    A) Sales, Balance Sheet, Income Statement
    B) Balance Sheet, Sales, Income Statement
    C) Sales, Income Statement, Balance Sheet
    D) Income Statement, Sales, Balance Sheet

Answer: C Level: Medium LO: 1

18. The budget method that maintains a constant twelve month planning horizon by adding a new month on the end as the current month is completed is called:
    A) an operating budget.
    B) a capital budget.
    C) a continuous budget.
    D) a master budget.

Answer: C Level: Easy LO: 1

19. In preparing a master budget, top management is generally best able to:
    A) prepare detailed departmental-level budget figures.
    B) provide a perspective on the company as a whole.
    C) point out the particular persons who are to blame for inability to meet budget goals.
    D) responses a, b, and c are all correct.

Answer: B Level: Easy LO: 1

20. Which of the following benefits could an organization reasonably expect from an effective budget program?

	Increased employee motivation	*Exposure of bottlenecks*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: A Level: Easy LO: 1

21. Which of the following is an advantage of implementing a self-imposed budgeting system?
    A) Budgeting is quick and easy because only a few individuals are involved in the budgeting process.
    B) Upper level management does not have to review budget estimates.
    C) Motivation to meet budget estimates is usually enhanced.
    D) All of the above.

Answer: C Level: Easy LO: 1

22. All the following are considered to be benefits of participative budgeting, except for:
    A) Individuals at all organizational levels are recognized as being part of a team; this results in greater support for the organization.
    B) The budget estimates are prepared by those in directly involved in activities.
    C) When managers set their own targets for the budget, top management need not be concerned with the overall profitability of operations.
    D) Managers are held responsible for reaching their goals and cannot easily shift responsibility by blaming unrealistic goals set by others.

Answer: C Level: Easy LO: 1 Source: CMA, adapted

23. Which of the following is NOT an objective of the budgeting process?
    A) To communicate management's plans throughout the entire organization.
    B) To provide a means of allocating resources to those parts of the organization where they can be used most effectively.
    C) To ensure that the company continues to grow.
    D) To uncover potential bottlenecks before they occur.

Answer: C Level: Easy LO: 1

24. When preparing a production budget, the required production equals:
A) budgeted sales + beginning inventory + desired ending inventory.
B) budgeted sales - beginning inventory + desired ending inventory.
C) budgeted sales - beginning inventory - desired ending inventory.
D) budgeted sales + beginning inventory - desired ending inventory.

Answer: B Level: Easy LO: 3 Source: CIMA, adapted

25. The direct labor budget is based on:
A) the desired ending inventory of finished goods.
B) the beginning inventory of finished goods.
C) the required production for the period.
D) the required materials purchases for the period.

Answer: C Level: Easy LO: 5

26. Which of the following might be included as a disbursement on a cash budget?

	Depreciation on factory equipment	*Income taxes to be paid*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: C Level: Medium LO: 8

27. Thirty percent of Sharp Company's sales are for cash and 70% are on account. Sixty percent of the account sales are collected in the month of sale, 25% in the month following sale, and 12% in the second month following sale. The remainder is uncollectible. The following are budgeted sales data for the company:

	January	*February*	*March*	*April*
Total sales	$50,000	$60,000	$40,000	$30,000

Total cash receipts in April are expected to be:
A) $24,640
B) $35,200
C) $31,560
D) $33,640

Answer: D Level: Medium LO: 2

28. Razz Company is estimating the following sales:

July	$45,000
August	$50,000
September	$65,000
October	$80,000
November	$75,000
December	$60,000

Sales at Razz are normally collected as follows: 10% in the month of sale; 60% in the month following the sale; and the remaining 30% in the second month following the sale. In Razz's budgeted balance sheet at December 31, at what amount will accounts receivable be shown?
A) $49,500
B) $76,500
C) $120,500
D) $135,500

Answer: B Level: Medium LO: 2

29. On January 1, Colver Company has 6,500 units of Product A on hand. During the year, the company plans to sell 15,000 units of Product A, and plans to have 5,000 units on hand at year end. How many units of Product A must be produced during the year? A) 13,500
A) 16,500
B) 15,000
C) 20,000

Answer: A Level: Easy LO: 3

30. Douglas Company plans to sell 24,000 units of Product A during July and 30,000 units during August. Sales of Product A during June were 25,000 units. Past experience has shown that end-of-month inventory should equal 3,000 units plus 30% of the next month's sales. On June 30 this requirement was met. Based on these data, how many units of Product A must be produced during the month of July?
A) 28,800
B) 22,200
C) 24,000
D) 25,800

Answer: D Level: Medium LO: 3

31. Villi Manufacturing Corporation's most recent sales budget indicates the following expected sales (in units):

	July	*August*	*September*
Expected unit sales	230,000	275,000	310,000

Villi wants to maintain a finished goods inventory of 20% of the next month's expected sales. How many units should Villi plan on producing for the month of August?
A) 268,000 units
B) 282,000 units
C) 291,000 units
D) 337,000 units

Answer: B Level: Medium LO: 3

32. Sharp Company, a retailer, plans to sell 15,000 units of Product X during the month of August. If the company has 2,500 units on hand at the start of the month, and plans to have 2,000 units on hand at the end of the month, how many units of Product X must be purchased from the supplier during the month?
A) 14,500
B) 15,500
C) 15,000
D) 17,000

Answer: A Level: Easy LO: 3

33. The following are budgeted data:

	January	*February*	*March*
Sales in units.....	15,000	20,000	18,000
Production in units.....	18,000	19,000	16,000

One pound of material is required for each finished unit. The inventory of materials at the end of each month should equal 20% of the following month's production needs. Purchases of raw materials for February should be:
A) 19,600 pounds
B) 20,400 pounds
C) 18,400 pounds
D) 18,600 pounds

Answer: C Level: Medium LO: 4

34. Rhett Company manufactures and sells dress shirts. Each shirt (unit) requires 3 yards of cloth. Selected data from Rhett's master budget for next quarter are shown below:

	April	*May*	*June*
Budgeted sales (in units)	26,000	28,000	32,000
Budgeted production (in units)	28,000	32,000	36,000
Desired ending inventory of cloth (in yards)	2,100	2,800	3,000

How many yards of cloth should Rhett plan on purchasing in May?
A) 84,700 yards
B) 96,700 yards
C) 98,100 yards
D) 98,800 yards

Answer: B Level: Medium LO: 4

35. Sparks Company has a cash balance of $7,500 on April 1. The company must maintain a minimum cash balance of $6,000. During April, cash receipts of $48,000 are planned. Cash disbursements during the month are expected to total $52,000. Ignoring interest payments, during April the company will need to borrow:
A) $3,500
B) $2,500
C) $6,000
D) $4,000

Answer: B Level: Easy LO: 8

36. For May, Young Company has budgeted its cash receipts at $125,000 and its cash disbursements at $138,000. The company's cash balance on May 1 is $17,000. If the desired May 31 cash balance is $20,000, then how much cash must the company borrow during the month (before considering any interest payments)?
A) $4,000
B) $8,000
C) $12,000
D) $16,000

Answer: D Level: Easy LO: 8

Use the following to answer questions 37-39:

Home Company will open a new store on January 1. Based on experience from its other retail outlets, Home Company is making the following sales projections:

	Cash Sales	*Credit Sales*
January	$60,000	$40,000
February	$30,000	$50,000
March	$40,000	$60,000
April	$40,000	$80,000

Home Company estimates that 70% of the credit sales will be collected in the month following the month of sale, with the balance collected in the second month following the month of sale.

37. Based on these data, the balance in accounts receivable on January 31 will be:
    A) $40,000
    B) $28,000
    C) $12,000
    D) $58,000

    Answer: A Level: Easy LO: 2

38. The March 31 balance in accounts receivable will be:
    A) $100,000
    B) $60,000
    C) $95,000
    D) $75,000

    Answer: D Level: Medium LO: 2

39. In a cash budget for the month of April, the total cash receipts will be:
    A) $74,000
    B) $57,000
    C) $114,000
    D) $97,000

    Answer: D Level: Medium LO: 2

Use the following to answer questions 40-42:

Roberts Company manufactures home cleaning products. One of the products, Quickclean, requires 2 pounds of Material A and 5 pounds of Material B per unit manufactured. Material A can be purchased from the supplier for $0.30 per pound and Material B can be purchased for $0.50 per pound. The finished goods inventory on hand at the end of each month must be equal to 4,000 units plus 25% of the next month's sales. The raw materials inventory on hand at the end of each month (for either Material A or Material B) must be equal to 80% of the following month's production needs.

40. Assume that on January 1 the inventory of Quickclean was 8,000 units. Expected sales in January are 14,000 units and expected sales in February are 18,000 units. The number of units needed to be manufactured in January would be:
    A) 10,500
    B) 14,000
    C) 14,500
    D) 15,000

    Answer: C Level: Medium LO: 3

41. Assume that the production budget calls for 26,000 units of Quickclean to be manufactured in June and 32,000 units of Quickclean to be manufactured in July. On May 31 there will be 41,600 pounds of Material A in inventory. The number of pounds of Material A needed for production during June would be:
    A) 61,600
    B) 51,200
    C) 35,600
    D) 52,000

    Answer: D Level: Medium LO: 4

42. Assume that the production budget calls for 26,000 units of Quickclean to be manufactured in June and 32,000 units to be manufactured in July. On May 31 there will be 104,000 pounds of Material B in inventory. The number of pounds of Material B to be purchased during June would be:
    A) 128,000
    B) 130,000
    C) 154,000
    D) 160,000

    Answer: C Level: Medium LO: 4

Use the following to answer questions 43-44:

The TS Company has budgeted sales for the year as follows:

	Quarter 1	*Quarter 2*	*Quarter 3*	*Quarter 4*
Sales in units	10,000	12,000	14,000	16,000

The ending inventory of finished goods for each quarter should equal 25% of the next quarter's budgeted sales in units. The finished goods inventory at the start of the year is 2,500 units. Four pounds of raw materials are required for each unit produced. Raw materials on hand at the start of the year total 4,200 pounds. The raw materials inventory at the end of each quarter should equal 10% of the next quarter's production needs in material.

43. Scheduled production for the third quarter should be:
    A) 14,500 units
    B) 18,500 units
    C) 15,500 units
    D) 13,500 units

    Answer: A Level: Medium LO: 3

44. Scheduled purchases of raw materials for the second quarter should be:
    A) 50,000 pounds
    B) 55,800 pounds
    C) 50,800 pounds
    D) 55,000 pounds

    Answer: C Level: Hard LO: 4

Use the following to answer questions 45-46:

Sarter Corporation is in the process of preparing its annual budget. The following beginning and ending inventory levels are planned for the year.

	Beginning Inventory	*Ending Inventory*
Finished goods (units).....	70,000	20,000
Raw material (grams).....	50,000	60,000

Each unit of finished goods requires 3 grams of raw material.

45. If the company plans to sell 880,000 units during the year, the number of units it would have to manufacture during the year would be:
    A) 900,000 units
    B) 930,000 units
    C) 880,000 units
    D) 830,000 units

    Answer: D Level: Easy LO: 3

46. How much of the raw material should the company purchase during the year?
    A) 2,550,000 grams
    B) 2,490,000 grams
    C) 2,480,000 grams
    D) 2,500,000 grams

    Answer: D Level: Medium LO: 4

Use the following to answer questions 47-49:

The following are budgeted data for the Bingham Company, a merchandising company:

	Budgeted Sales (at retail)
January	$300,000
February	$340,000
March	$400,000
April	$350,000

Cost of goods sold as a percentage of sales is 60%. The desired ending inventory is 75% of next month's sales.

47. Assuming that the Bingham Company had inventory on hand of $70,000 (at cost) on January 1, the purchases for January (at cost) would be:
    A) $180,000
    B) $250,000
    C) $263,000
    D) $110,000

    Answer: C Level: Medium LO: 3

48. The desired ending inventory (at cost) for the month of February would be:
    A) $180,000
    B) $300,000
    C) $240,000
    D) $160,000

    Answer: A Level: Easy LO: 3

49. Assume that all purchases are paid for in the month following the month of purchase. The cash disbursements for purchases that would appear in the April cash budget would be:
    A) $180,000
    B) $157,500
    C) $240,000
    D) $217,500

    Answer: D Level: Medium LO: 3

Use the following to answer questions 50-51:

LFM Corporation makes and sells a product called Product WZ. Each unit of Product WZ requires 3.5 hours of direct labor at the rate of $16.00 per direct labor-hour. Management would like you to prepare a Direct Labor Budget for June.

50. The budgeted direct labor cost per unit of Product WZ would be:
    A) $4.57
    B) $19.50
    C) $16.00
    D) $56.00

    Answer: D Level: Easy LO: 5

51. The company plans to sell 31,000 units of Product WZ in June. The finished goods inventories on June 1 and June 30 are budgeted to be 100 and 600 units, respectively. Budgeted direct labor costs for June would be:
    A) $1,764,000
    B) $504,000
    C) $1,708,000
    D) $1,736,000

    Answer: A Level: Medium LO: 3,5

Use the following to answer questions 52-53:

Marty's Merchandise has budgeted sales as follows for the second quarter of the year:

April	$30,000
May	$60,000
June	$50,000

Cost of goods sold is equal to 70% of sales. The company wants to maintain a monthly ending inventory equal to 120% of the cost of goods sold for the following month. The inventory on March 31 was below this target and was only $22,000. The company is now preparing a Merchandise Purchases Budget for April, May, and June.

52. The desired beginning inventory for June is:
    A) $42,000
    B) $35,000
    C) $50,000
    D) $38,000

    Answer: A Level: Easy LO: 3

53. The budgeted purchases for May are:
    A) $49,400
    B) $50,400
    C) $60,000
    D) $33,600

    Answer: D Level: Medium LO: 3

Use the following to answer questions 54-55:

Harris, Inc., has budgeted sales in units for the next five months as follows:

June.....	9,400 units
July	7,800 units
August	7,300 units
September.....	5,400 units
October	4,100 units

Past experience has shown that the ending inventory for each month should be equal to 20% of the next month's sales in units. The inventory on May 31 contained 1,880 units. The company needs to prepare a production budget for the next five months.

54. The beginning inventory for September should be:
    A) 820 units
    B) 1,880 units
    C) 1,460 units
    D) 1,080 units

    Answer: D Level: Easy LO: 3

55. The total number of units produced in July should be:
    A) 9,260 units
    B) 7,700 units
    C) 7,800 units
    D) 7,900 units

    Answer: B Level: Easy LO: 3

Use the following to answer questions 56-57:

Hamway Products, Inc. makes and sells a single product called a Wob. It takes two yards of material A to make one Wob. Budgeted production of Wobs for the next four months is as follows:

April	12,000 units
May	13,500 units
June	12,400 units
July	11,200 units

The company wants to maintain monthly ending inventories of material A equal to 10% of the following month's production needs. On March 31 this target had not been met since only 1,500 yards of material A were on hand. The cost of material A is $.90 per yard.

56. The total cost of material A to be purchased in April is:
    A) $22,680
    B) $24,750
    C) $26,750
    D) $26,780

    Answer: A Level: Medium LO: 4

57. The desired ending inventory of material A for the month of June is
    A) 2,480 yards
    B) 1,120 yards
    C) 1,870 yards
    D) 2,240 yards

    Answer: D Level: Easy LO: 4

Use the following to answer questions 58-60:

The Gerald Company makes and sells a single product called a Clop. Each Clop requires the use of 1.1 hours of direct labor time. The planned cost of direct labor time is $8.20 per hour. The direct labor workforce is fully adjusted each month to the required workload. The company wishes to prepare a Direct Labor Budget for the first quarter of the year.

58. If the company has budgeted to produce 20,000 Clops in January, then the budgeted direct labor cost for January is:
    A) $164,000
    B) $180,400
    C) $172,200
    D) $195,600

    Answer: B Level: Easy LO: 5

59. If the budgeted direct labor cost for February is $162,360, then the budgeted production of Clops for February is:
    A) 23,200 units
    B) 21,000 units
    C) 19,800 units
    D) 18,000 units

    Answer: D Level: Easy LO: 5

60. The budgeted direct labor cost per Clop is:
    A) $7.45
    B) $8.20
    C) $9.02
    D) $9.76

    Answer: C Level: Easy LO: 5

Use the following to answer questions 61-62:

Acmal Manufacturing Company is estimating the following raw material purchases for the last four months of the year:

September.....	$850,000
October.....	$900,000
November.....	$810,000
December	$780,000

At Acmal, 25% of raw materials purchases are normally paid for in the month of purchase. The remaining 75% is paid for in the month following the purchase.

61. How much cash should Acmal expect to pay out for raw material purchases during the month of November?
    A) $202,500
    B) $832,500
    C) $862,500
    D) $877,500

    Answer: D Level: Medium LO: 4

62. In Acmal's budgeted balance sheet at December 31, at what amount will accounts payable be shown? (Assume that accounts payable is only used for raw material purchases.)
    A) $585,000
    B) $607,500
    C) $780,000
    D) $802,500

    Answer: A Level: Medium LO: 4

Use the following to answer questions 63-64:

Cashan Corporation makes and sells a product called a Miniwarp. One Miniwarp requires 1.5 kilograms of the raw material Jurislon. Budgeted production of Miniwarps for the next five months is as follows:

August	24,500 units
September.....	24,700 units
October.....	24,600 units
November.....	26,400 units
December	24,500 units

The company wants to maintain monthly ending inventories of Jurislon equal to 30% of the following month's production needs. On July 31, this requirement was not met since only 10,400 kilograms of Jurislon were on hand. The cost of Jurislon is $4.00 per kilogram. The company wants to prepare a Direct Materials Purchase Budget for the next five months.

63. The desired ending inventory of Jurislon for the month of September is:
    A) $29,640
    B) $29,520
    C) $44,460
    D) $44,280

    Answer: D Level: Medium LO: 4

64. The total cost of Jurislon to be purchased in August is:
    A) $149,860
    B) $252,400
    C) $191,460
    D) $147,000

    Answer: A Level: Medium LO: 4

Use the following to answer questions 65-68:

The Panza Company makes and sells only one product called a Deb. The company is in the process of preparing its Selling and Administrative Expense Budget for next year. The following budget data are available:

	Monthly Fixed Cost	*Variable Cost Per Deb Sold*
Sales commissions		$0.75
Shipping		$1.30
Advertising	$30,000	$0.20
Executive salaries	$25,000	
Depreciation on office equipment	$15,000	
Other	$7,000	

All of these expenses (except depreciation) are paid in cash in the month they are incurred.

65. If the company has budgeted to sell 18,000 Debs in January, then the total budgeted variable selling and administrative expenses for January will be:
    A) $13,500
    B) $23,400
    C) $37,900
    D) $40,500

    Answer: D Level: Easy LO: 7

66. If the company has budgeted to sell 16,000 Debs in February, then the total budgeted fixed selling and administrative expenses for February is:
    A) $36,000
    B) $77,000
    C) $62,000
    D) $98,000
    E) none of these

    Answer: B Level: Easy LO: 7

67. If the company has budgeted to sell 20,000 Debs in March, then the total budgeted selling and administrative expenses per unit sold for March is:
    A) $2.25
    B) $5.35
    C) $5.80
    D) $6.10

    Answer: D Level: Easy LO: 7

68. If the budgeted cash disbursements for selling and administrative expenses for April total $116,000, then how many Debs does the company plan to sell in April?
    A) 17,333 units
    B) 18,250 units
    C) 24,000 units
    D) 26,800 units

    Answer: C Level: Medium LO: 7

Use the following to answer questions 69-71:

Davey Corporation is preparing its Manufacturing Overhead Budget for the fourth quarter of the year. The budgeted variable factory overhead rate is $3.00 per direct labor-hour; the budgeted fixed factory overhead is $66,000 per month, of which $10,000 is factory depreciation.

69. If the budgeted direct labor time for October is 6,000 hours, then the total budgeted factory overhead for October is:
    A) $28,000
    B) $56,000
    C) $74,000
    D) $84,000

    Answer: D Level: Easy LO: 6

70. If the budgeted direct labor time for November is 9,000 hours, then the total budgeted cash disbursements for November must be:
    A) $56,000
    B) $83,000
    C) $37,000
    D) $93,000

    Answer: B Level: Medium LO: 6

71. If the budgeted direct labor time for December is 4,000 hours, then the predetermined factory overhead per direct labor-hour for December would be:
    A) $3.00
    B) $19.50
    C) $5.50
    D) $17.00

    Answer: B Level: Medium LO: 6

Use the following to answer questions 72-74:

Poriss Corporation makes and sells a single product called a Yute. The company is in the process of preparing its Selling and Administrative Expense Budget for the last quarter of the year. The following budget data are available:

	Variable Cost Per Yute Sold	*Monthly Fixed Cost*
Sales commissions	$2.10	
Shipping	$3.90	
Advertising	$7.40	$34,000
Executive salaries		$198,000
Depreciation on office equipment		$10,000
Other	$0.60	$38,000

All of these expenses (except depreciation) are paid in cash in the month they are incurred.

72. If the company has budgeted to sell 19,000 Yutes in November, then the total budgeted variable selling and administrative expenses for November would be:
    A) $546,000
    B) $280,000
    C) $266,000
    D) $536,000

    Answer: A Level: Medium LO: 7

73. If the company has budgeted to sell 16,000 Yutes in December, then the budgeted total cash disbursements for selling and administrative expenses for December would be:
    A) $280,000
    B) $494,000
    C) $224,000
    D) $504,000

    Answer: B Level: Medium LO: 7

74. If the budgeted cash disbursements for selling and administrative expenses for October total $459,200, then how many Yutes does the company plan to sell in October?
    A) 13,300 units
    B) 12,500 units
    C) 13,000 units
    D) 12,800 units

    Answer: D Level: Hard LO: 7

Use the following to answer questions 75-77:

Sipan Retail Company was recently created with a beginning cash balance of $12,000. The owner expects the following for the first month of operations:

Cash sales to customers	$8,000
Sales on account to customers	$30,000
Cash collected from account customers	$12,000
Cost of merchandise purchased	$35,000
Cash paid for merchandise purchased	$24,500
Cost of merchandise sold	$26,600
Cash paid for display cases	$9,600
Selling and administrative expenses	$4,000

The display cases above were purchased at the beginning of the month and are being depreciated at a rate of $200 per month. This amount is included in the selling and administrative expenses figure above. All other selling and administrative expenses are paid as incurred. Sipan wants to maintain a cash balance of $10,000. Any amount below this can be borrowed from a local bank as needed in increments of $1,000. All borrowings are made at month end.

75. In Sipan's cash budget for this first month, how much money will Sipan need to borrow at month end?
    A) $7,000
    B) $16,000
    C) $17,000
    D) $28,000

    Answer: B Level: Hard LO: 8

76. In Sipan's budgeted income statement for this first month, what will net income (loss) be for this first month?
    A) $(1,000)
    B) $(2,000)
    C) $7,400
    D) $9,500

    Answer: C Level: Medium LO: 9

77. In Sipan's budgeted balance sheet at the end of this first month, at what amount will accounts receivable be shown?
    A) $0
    B) $9,600
    C) $18,000
    D) $26,000

    Answer: C Level: Medium LO: 10

Use the following to answer questions 78-79:

The Ellis Company has budgeted its activity for September according to the following information:

- Sales are budgeted at $392,000 and all sales are for cash.
- All purchases of merchandise inventory are for cash. Merchandise inventory was $150,000 on August 31 and the planned merchandise inventory on September 30 is $140,000. All merchandise is sold at 40% above cost.
- The selling and administrative expenses are budgeted at $92,000 for the month. All of these expenses are paid for in cash except for depreciation of $12,000.

78. The budgeted net income for September is:
    A) $20,000
    B) $143,200
    C) $112,000
    D) $64,800

    Answer: A Level: Medium LO: 9

79. The budgeted cash disbursements for September are:
    A) $140,000
    B) $270,000
    C) $350,000
    D) $362,000

    Answer: C Level: Medium LO: 8

Use the following to answer questions 80-83:

Kelly Company is a retail sporting goods store. Facts regarding Kelly's operations are as follows:

- Sales are budgeted at $220,000 for November and $200,000 for December.
- Collections are expected to be 60% in the month of sale and 38% in the month following the sale. 2% of sales are expected to be uncollectible.
- The cost of goods sold is 75% of sales.
- A total of 80% of the merchandise is purchased in the month prior to the month of sale and 20% is purchased in the month of sale. Payment for merchandise is made in the month following the purchase.
- Other monthly expenses to be paid in cash are $22,600.
- Monthly depreciation is $18,000.

Kelly Company
Statement of Financial Position
October 31

Assets	
Cash	$ 22,000
Accounts receivable (net of allowance for uncollectible accounts)	76,000
Inventory	132,000
Property, plant and equipment (net of $680,000 accumulated depreciation)	870,000
Total assets	$1,100,000
Liabilities and Stockholders' Equity	
Accounts payable	$ 162,000
Common stock	800,000
Retained earnings	138,000
Total liabilities and stockholders' equity	$1,100,000

80. The budgeted cash collections for November are:
    A) $208,000
    B) $132,000
    C) $203,600
    D) $212,000

    Answer: A Level: Medium LO: 8 Source: CMA, adapted

81. The net income for November is:
    A) $32,400
    B) $28,000
    C) $14,400
    D) $10,000

    Answer: D Level: Hard LO: 9 Source: CMA, adapted

82. The projected balance in accounts payable on November 30 is:
    A) $162,000
    B) $204,000
    C) $153,000
    D) $160,000

    Answer: C Level: Medium LO: 10 Source: CMA, adapted

83. The projected balance in inventory on November 30 is:
    A) $160,000
    B) $120,000
    C) $153,000
    D) $150,000

    Answer: B Level: Hard LO: 10 Source: CMA, adapted

Use the following to answer questions 84-92:

Dilbert Farm Supply is located in a small town in the rural west. Data regarding the store's operations follow:

- Sales are budgeted at $260,000 for November, $230,000 for December, and $210,000 for January.
- Collections are expected to be 80% in the month of sale, 19% in the month following the sale, and 1% uncollectible.
- The cost of goods sold is 65% of sales.
- The company purchases 60% of its merchandise in the month prior to the month of sale and 40% in the month of sale. Payment for merchandise is made in the month following the purchase.
- Other monthly expenses to be paid in cash are $20,300.
- Monthly depreciation is $20,000.
- Ignore taxes.

Statement of Financial Position
October 31

Assets	
Cash	$ 27,000
Accounts receivable (net of allowance for uncollectible accounts)	79,000
Inventory	101,400
Property, plant and equipment (net of $574,000 accumulated depreciation)	1,082,000
Total assets	$1,289,400
Liabilities and Stockholders' Equity	
Accounts payable	$ 169,000
Common stock	740,000
Retained earnings	380,400
Total liabilities and stockholders' equity	$1,289,400

84. Expected cash collections in December are:
    A) $230,000
    B) $184,000
    C) $233,400
    D) $49,400

    Answer: C Level: Hard LO: 2

85. The cost of December merchandise purchases would be:
    A) $141,700
    B) $169,000
    C) $81,900
    D) $149,500

    Answer: A Level: Hard LO: 3

86. December cash disbursements for merchandise purchases would be:
    A) $141,700
    B) $149,500
    C) $157,300
    D) $81,900

    Answer: C Level: Hard LO: 3

87. The excess (deficiency) of cash available over disbursements for December would be:
    A) $55,800
    B) $37,900
    C) $93,700
    D) $17,900

    Answer: A Level: Hard LO: 8

88. The net income for December would be:
    A) $60,200
    B) $37,900
    C) $40,200
    D) $55,800

    Answer: B Level: Hard LO: 9

89. The cash balance at the end of December would be:
    A) $180,500
    B) $153,500
    C) $82,800
    D) $27,000

    Answer: A Level: Hard LO: 10

90. The accounts receivable balance, net of uncollectible accounts, at the end of December would be:
    A) $46,000
    B) $93,100
    C) $43,700
    D) $81,300

    Answer: C Level: Hard LO: 10

91. Accounts payable at the end of December would be:
    A) $81,900
    B) $141,700
    C) $59,800
    D) $149,500

    Answer: B Level: Hard LO: 10

92. Retained earnings at the end of December would be:
    A) $380,400
    B) $418,300
    C) $471,300
    D) $466,400

    Answer: D Level: Hard LO: 10

Use the following to answer questions 93-96:

Bracken Corporation is a small wholesaler of gourmet food products. Data regarding the store's operations follow:

- Sales are budgeted at $330,000 for November, $340,000 for December, and $340,000 for January.
- Collections are expected to be 80% in the month of sale, 17% in the month following the sale, and 3% uncollectible.
- The cost of goods sold is 75% of sales.
- The company purchases 70% of its merchandise in the month prior to the month of sale and 30% in the month of sale. Payment for merchandise is made in the month following the purchase.
- Other monthly expenses to be paid in cash are $21,800.
- Monthly depreciation is $19,000.
- Ignore taxes.

Statement of Financial Position
October 31

Assets	
Cash	$ 28,000
Accounts receivable (net of allowance for uncollectible accounts)	76,000
Inventory	173,250
Property, plant and equipment (net of $604,000 accumulated depreciation)	1,170,000
Total assets	$1,447,250
Liabilities and Stockholders' Equity	
Accounts payable	$ 255,000
Common stock	840,000
Retained earnings	352,250
Total liabilities and stockholders' equity	$1,447,250

93. Expected cash collections in December are:
    A) $340,000
    B) $328,100
    C) $272,000
    D) $56,100

    Answer: B Level: Hard LO: 2

94. The cost of December merchandise purchases would be:
    A) $225,000
    B) $178,500
    C) $247,500
    D) $255,000

    Answer: D Level: Hard LO: 3

95. December cash disbursements for merchandise purchases would be:
    A) $178,500
    B) $255,000
    C) $225,000
    D) $252,750

    Answer: D Level: Hard LO: 3

96. The excess (deficiency) of cash available over disbursements for December would be:
    A) $34,000
    B) $19,550
    C) $87,550
    D) $53,550

    Answer: D Level: Hard LO: 8

Use the following to answer questions 97-101:

Carter Lumber sells lumber and general building supplies to building contractors in a medium-sized town in Montana. Data regarding the store's operations follow:

- Sales are budgeted at $380,000 for November, $390,000 for December, and $400,000 for January.
- Collections are expected to be 70% in the month of sale, 27% in the month following the sale, and 3% uncollectible.
- The cost of goods sold is 65% of sales.
- The company purchases 80% of its merchandise in the month prior to the month of sale and 20% in the month of sale. Payment for merchandise is made in the month following the purchase.
- Other monthly expenses to be paid in cash are $22,000.
- Monthly depreciation is $20,000.
- Ignore taxes.

Statement of Financial Position
October 31

Assets	
Cash	$ 13,000
Accounts receivable (net of allowance for uncollectible accounts)	77,000
Inventory	197,600
Property, plant and equipment (net of $502,000 accumulated depreciation)	992,000
Total assets	$1,279,600
Liabilities and Stockholders' Equity	
Accounts payable	$ 240,000
Common stock	780,000
Retained earnings	259,600
Total liabilities and stockholders' equity	$1,279,600

97. The net income for December would be:
    A) $114,500
    B) $94,500
    C) $101,400
    D) $82,800

    Answer: D Level: Hard LO: 9

98. The cash balance at the end of December would be:
    A) $182,400
    B) $114,400
    C) $13,000
    D) $195,400

    Answer: D Level: Hard LO: 10

99. The accounts receivable balance, net of uncollectible accounts, at the end of December would be:
    A) $105,300
    B) $88,700
    C) $117,000
    D) $207,900

    Answer: A Level: Hard LO: 10

100. Accounts payable at the end of December would be:
    A) $253,500
    B) $50,700
    C) $208,000
    D) $258,700

    Answer: D Level: Hard LO: 10

101. Retained earnings at the end of December would be:
    A) $259,600
    B) $342,400
    C) $422,000
    D) $445,100

    Answer: C Level: Hard LO: 10

Essay Questions

102. Mate Boomerang Corporation manufactures and sells plastic boomerangs. Expected boomerang sales (in units) for the upcoming months are as follows:

	July	Aug.	Sept.	Oct.	Nov.	Dec.
Expected unit sales	12,000	15,000	10,000	8,000	7,000	11,000

Seven ounces of plastic resin are needed to produce every boomerang. Mate likes to have enough plastic resin on hand at the end of the month to cover 25% of the next month's production requirements. Mate also likes to maintain a finished goods inventory equal to 10% of the next month's estimated sales.

Required:
How many ounces of plastic resin should Mate plan on purchasing during the month of October?

Level: Hard LO: 2,3

Answer:

October production = 8,000 + (7,000 × 10%) - (8,000 × 10%) = 7,900;
November production = 7,000 + (11,000 × 10%) - (7,000 × 10%) = 7,400;
October production resin needs = 7,900 × 7 = 55,300 ounces
November production resin needs = 7,400 × 7 = 51,800 ounces
October resin purchases = 55,300 + (51,800 × 25%) - (55,300 × 25%)
= 54,425 ounces

103. All sales at Meeks Company, a wholesaler, are made on credit. Experience has shown that 70% of the accounts receivable are collected in the month of the sale, 26% are collected in the month following the sale, and the remaining 4% are uncollectible. Actual sales for March and budgeted sales for the following four months are given below:

March (actual sales).....	$200,000
April.....	$300,000
May.....	$500,000
June.....	$700,000
July	$400,000

The company's cost of goods sold is equal to 60% of sales. All purchases of inventory are made on credit. Meeks Company pays for one half of a month's purchases in the month of purchase, and the other half in the month following purchase. The company requires that end-of-month inventories be equal to 25% of the cost of goods sold for the next month.

Required:

a. Compute the amount of cash, in total, which the company can expect to collect in May.
b. Compute the budgeted dollar amount of inventory which the company should have on hand at the end of April.
c. Compute the amount of inventory that the company should purchase during the months of May and June.
d. Compute the amount of cash payments that will be made to suppliers during June for purchases of inventory.

Level: Medium LO: 2,3,4

Answer:

a.	Sales, April: $300,000 × 0.26	$ 78,000
	Sales, May: $500,000 × 0.70	350,000
	Total Collections	$428,000

b. Budgeted cost of goods sold for May:
$500,000 × 60% = $300,000

Required inventory level at the end of April:
$300,000 × 25% = $75,000

c.

	May	*June*	*July*
Budgeted sales	$500,000	$700,000	$400,000
Budgeted cost of goods sold (60%)	300,000	420,000	240,000
Desired ending inventory, at cost*	105,000	60,000	
Total needs	405,000	480,000	
Less beginning inventory, at cost**	75,000	105,000	
Required purchases, at cost	$330,000	$375,000	

*Following month's cost of goods sold × 25%
**Current month's cost of goods sold × 25%

d.	Payments for May purchases: $330,000 × 0.50	$165,000
	Payments for June purchases: $375,000 × 0.50	187,500
		$352,500

104. The following information is budgeted for McCracken Plumbing Supply Company for next quarter:

	April	*May*	*June*
Sales	$110,000	$130,000	$180,000
Merchandise purchases	$85,000	$92,000	$105,000
Selling and administrative expenses	$50,000	$50,000	$50,000

All sales at McCracken are on credit. Forty percent are collected in the month of sale, 58% in the month following the sale, and the remaining 2% are uncollectible. Merchandise purchases are paid in full the month following the month of purchase. The selling and administrative expenses above include $8,000 of depreciation on display fixtures and warehouse equipment. All other selling and administrative expenses are paid as incurred. McCracken wants to maintain a cash balance of $15,000. Any amount below this can be borrowed from a local bank as needed in increments of $1,000. All borrowings are made at month end.

Required:
Prepare McCracken's cash budget for the month of May. Use good form. McCracken expects to have $24,000 of cash on hand at the beginning of May.

Level: Medium LO: 2,3,7,8

Answer:

McCracken Plumbing Supply
Cash Budget for the Month of May

Cash balance, beginning	$ 24,000
Add receipts:	
Collections from customers ($130,000 × 40%) + ($110,000 × 58%)	115,800
Total cash available before current financing	139,800
Less disbursements:	
Merchandise purchases	85,000
Selling and administrative ($50,000 - $8,000)	42,000
Total disbursements	127,000
Excess of cash available over disbursements	12,800
Financing:	
Borrowings	3,000
Cash balance, ending	$ 15,800

105. The Fraley Company, a merchandising firm, has planned the following sales for the next four months:

	March	*April*	*May*	*June*
Total budgeted sales	$50,000	$70,000	$90,000	$60,000

Sales are made 40% for cash and 60% on account. From experience, the company has learned that a month's sales on account are collected according to the following pattern:

Month of sale	70%
First month following month of sale	20%
Second month following month of sale	8%
Uncollectible	2%

The company requires a minimum cash balance of $4,000 to start a month.

Required:

a. Compute the budgeted cash receipts for June.
b. Assume the following budgeted data for June:

Purchases	$52,000
Selling and administrative expenses	$10,000
Depreciation	$8,000
Equipment purchases	$15,000
Cash balance, beginning of June	$6,000

Using this data, along with your answer to part (1) above, prepare a cash budget in good form for June. Clearly show any borrowing needed during the month. The company can borrow in any dollar amount, but will not pay any interest until the following month.

Level: Medium LO: 2,8

Answer:

a.	Cash sales, June: $60,000 × 40%	$24,000
	Collections on account:	
	June: $60,000 × 60% × 70%	25,200
	May: $90,000 × 60% × 20%	10,800
	April: $70,000 × 60% × 8%	3,360
	Total cash receipts	$63,360
b.	Cash balance, beginning	$ 6,000
	Add cash receipts from sales	63,360
	Total cash available	69,360
	Less disbursements:	
	Purchases	52,000
	Selling and administrative	10,000
	Equipment purchases	15,000
	Total disbursements	77,000
	Deficiency of cash	(7,640)
	Financing:	
	Borrowing	11,640
	Repayments	0
	Interest	0
	Total financing	11,640
	Cash balance, ending	$ 4,000

106. Bledso Supply Corporation manufactures and sells cotton gauze. Expected sales of gauze (in boxes) for upcoming months are as follows:

June	36,000
July	40,000
August	50,000
September	38,000
October	30,000
November	24,000
December	35,000

Management likes to maintain a finished goods inventory equal to 25% of the next month's estimated sales.

Required:
Prepare the company's production budget for the third quarter of this year (the months of July, August and September) in good form. Include a column for each month and a total column for the entire quarter.

Level: Medium LO: 3

Answer:

Bledso Supply Corporation
Production Budget for the Third Quarter

	July	*August*	*Sept.*	*Total*
Expected unit sales	40,000	50,000	38,000	128,000
Add desired ending inventory of finished goods	12,500	9,500	7,500	7,500
Total needs	52,500	59,500	45,500	135,500
Less beginning inventory of finished goods	10,000	12,500	9,500	10,000
Units to be produced	42,500	47,000	36,000	125,500

107. Weldon Industrial Gas Corporation supplies acetylene and other compressed gases to industry. Data regarding the store's operations follow:

- Sales are budgeted at $360,000 for November, $380,000 for December, and $350,000 for January.
- Collections are expected to be 75% in the month of sale, 20% in the month following the sale, and 5% uncollectible.
- The cost of goods sold is 65% of sales.
- The company purchases 60% of its merchandise in the month prior to the month of sale and 40% in the month of sale. Payment for merchandise is made in the month following the purchase.
- Other monthly expenses to be paid in cash are $21,900.
- Monthly depreciation is $20,000.
- Ignore taxes.

Statement of Financial Position
October 31

Assets	
Cash	$ 16,000
Accounts receivable (net of allowance for uncollectible accounts)	74,000
Inventory	140,400
Property, plant and equipment (net of $500,000 accumulated depreciation)	1,066,000
Total assets	$1,296,400

Liabilities and Stockholders' Equity	
Accounts payable	$ 240,000
Common stock	640,000
Retained earnings	416,400
Total liabilities and stockholders' equity	$1,296,400

Required:

a. Prepare a Schedule of Expected Cash Collections for November and December.
b. Prepare a Merchandise Purchases Budget for November and December.
c. Prepare Cash Budgets for November and December.
d. Prepare Budgeted Income Statements for November and December.
e. Prepare a Budgeted Balance Sheet for the end of December.

Level: Hard LO: 2,3,8,9,10

Answer:

a.

	November	December
Sales	$360,000	$380,000

Schedule of Expected Cash Collections

Accounts receivable	$ 74,000	
November sales	270,000	$ 72,000
December sales		285,000
Total cash collections	$344,000	$357,000

b.

	November	December
Cost of goods sold	$234,000	$247,000

Merchandise Purchases Budget

November sales	$ 93,600	
December sales	148,200	$ 98,800
January sales		136,500
Total purchases	$241,800	$235,300
Disbursements for merchandise	$240,000	$241,800

c.

	November	December
Cash receipts	$344,000	$357,000
Cash disbursements:		
Disbursements for merchandise	240,000	241,800
Other monthly expenses	21,900	21,900
Total cash disbursements	261,900	263,700
Excess (deficiency) of cash available over disbursements	$ 82,100	$ 93,300

d.

	November	December
Sales	$360,000	$380,000
Less bad debt expense	18,000	19,000
Less cost of goods sold	234,000	247,000
Gross margin	108,000	114,000
Other monthly expenses	21,900	21,900
Depreciation	20,000	20,000
Net operating income	$ 66,100	$ 72,100

e.

Statement of Financial Position
December 31

Assets	
Cash	$ 191,400
Accounts receivable (net of allowance for uncollectible accounts)	76,000
Inventory	136,500
Property, plant and equipment (net of $540,000 accumulated depreciation)	1,026,000
Total assets	$1,429,900
Liabilities and Stockholders' Equity	
Accounts payable	$ 235,300
Common stock	640,000
Retained earnings	554,600
Total liabilities and stockholders' equity	$1,429,900

108. Caprice Corporation is a wholesaler of industrial goods. Data regarding the store's operations follow:

- Sales are budgeted at $350,000 for November, $320,000 for December, and $300,000 for January.
- Collections are expected to be 80% in the month of sale, 16% in the month following the sale, and 4% uncollectible.
- The cost of goods sold is 70% of sales.
- The company purchases 60% of its merchandise in the month prior to the month of sale and 40% in the month of sale. Payment for merchandise is made in the month following the purchase.
- The November beginning balance in the accounts receivable account is $78,000.
- The November beginning balance in the accounts payable account is $254,000.

Required:
a. Prepare a Schedule of Expected Cash Collections for November and December.
b. Prepare a Merchandise Purchases Budget for November and December.

Level: Medium LO: 2,3

Answer:

a.

	November	December
Sales	$350,000	$320,000

Schedule of Expected Cash Collections

Accounts receivable	$ 78,000	
November sales	280,000	$ 56,000
December sales		256,000
Total cash collections	$358,000	$312,000

b.

	November	December
Cost of goods sold	$245,000	$224,000

Merchandise Purchases Budget

November sales	$ 98,000	
December sales	134,400	$ 89,600
January sales		126,000
Total purchases	$232,400	$215,600
Disbursements for merchandise	$254,000	$232,400

Chapter 10 Standard Costs and the Balanced Scorecard

True/False Questions

1. A direct material quantity standard generally includes an allowance for waste.

   Answer: True Level: Easy LO: 1

2. Practical standards allow for normal machine downtime and employee rest periods.

   Answer: True Level: Easy LO: 1

3. Ideal standards can be used in forecasting and planning whereas practical standards cannot be used for such purposes.

   Answer: False Level: Easy LO: 1

4. Most companies compute the materials price variance when materials are placed into production.

   Answer: False Level: Easy LO: 2

5. A materials price variance is favorable if the actual price exceeds the standard price.

   Answer: False Level: Easy LO: 2

6. An unfavorable materials quantity variance occurs when the actual quantity used in production is less than the standard quantity allowed for the actual output of the period.

   Answer: False Level: Easy LO: 2

7. An unfavorable labor rate variance can occur if workers with high hourly wage rates are assigned to work on products whose standards assume workers with low hourly wage rates.

   Answer: True Level: Easy LO: 3

8. If variable manufacturing overhead is applied based on direct labor-hours, it is impossible to have a favorable labor efficiency variance and unfavorable variable overhead efficiency variance for the same period.

   Answer: True Level: Medium LO: 4

9. A balanced scorecard contains both customer and internal business process performance measures since improvements in customer satisfaction should result in improvements in internal business processes.

   Answer: False Level: Medium LO: 5

10. Different companies, having different strategies, should have different balanced scorecards even if they are in the same industry.

    Answer: True Level: Easy LO: 5

11. A manufacturing cycle efficiency (MCE) ratio of less than 1.00 is desirable since this ratio measures the amount of non-value-added time to throughput time.

    Answer: False Level: Medium LO: 6

12. A favorable materials quantity variance would appear as a debit in a journal entry.

    Answer: False Level: Medium LO: 7 Appendix: 10

13. Although formal entry of standard costs and variances into the accounting records is not required, some organizations make such entries in order to emphasize the importance of variances as well as to simplify the bookkeeping process.

    Answer: True Level: Easy LO: 7 Appendix: 10

14. A standard can be regarded as the budgeted cost for one unit of product.

    Answer: True Level: Easy LO: 8

15. In using a statistical control chart, observation points plotted between the upper and lower limits are considered to be random or chance occurrences and would not typically result in an investigation.

    Answer: True Level: Easy LO: 8

Multiple Choice Questions

16. Which of the following statements concerning ideal standards is incorrect?
    A) Ideal standards generally do not provide the best motivation for workers.
    B) Ideal standards do not make allowances for waste, spoilage, and machine breakdowns.
    C) Ideal standards are better suited for cash budgeting than practical standards.
    D) Ideal standards may be better than practical standards when managers seek continual improvement.

    Answer: C Level: Medium LO: 1 Source: CMA, adapted

17. Under traditional standard costing, which of the following would commonly be included when setting a standard quantity for direct material?

	An allowance for material wasted during production	*An allowance for material rejected during production*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

    Answer: A Level: Medium LO: 1

18. When computing standard cost variances, the difference between actual and standard price multiplied by actual quantity yields a(n):
    A) combined price and quantity variance.
    B) efficiency variance.
    C) price variance.
    D) quantity variance.

    Answer: C Level: Easy LO: 2,3 Source: CMA, adapted

19. Poor quality materials could have an unfavorable effect on which of the following variances?

	Labor Efficiency Variance	*Materials Quantity Variance*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: A Level: Medium LO: 2,3

20. When the actual price paid on credit for a raw material exceeds its standard price, the journal entry would include:
A) Debit to Raw Materials; Credit to Materials Price Variance
B) Debit to Accounts Payable; Credit to Materials Price Variance
C) Debit to Raw Materials; Debit to Materials Price Variance
D) Debit to Accounts Payable; Debit to Materials Price Variance

Answer: C Level: Medium LO: 2,7 Appendix: 10

21. When the actual price paid on credit for a raw material is less than its standard price, the journal entry would include:
A) Credit to Raw Materials; Credit to Materials Price Variance
B) Credit to Accounts Payable; Credit to Materials Price Variance
C) Credit to Raw Materials; Debit to Materials Price Variance
D) Credit to Accounts Payable; Debit to Materials Price Variance

Answer: B Level: Medium LO: 2,7 Appendix: 10

22. When the actual amount of a raw material used in production is less than the standard amount allowed for the actual output, the journal entry would include:
A) Credit to Raw Materials; Credit to Materials Quantity Variance
B) Credit to Work-In-Process; Credit to Materials Quantity Variance
C) Credit to Raw Materials; Debit to Materials Quantity Variance
D) Credit to Work-In-Process; Debit to Materials Quantity Variance

Answer: A Level: Medium LO: 2,7 Appendix: 10

23. When the actual amount of a raw material used in production is greater than the standard amount allowed for the actual output, the journal entry would include:
    A) Credit to Raw Materials; Credit to Materials Quantity Variance
    B) Credit to Work-In-Process; Credit to Materials Quantity Variance
    C) Credit to Raw Materials; Debit to Materials Quantity Variance
    D) Credit to Work-In-Process; Debit to Materials Quantity Variance

    Answer: C Level: Medium LO: 2,7 Appendix: 10

24. Which of the following would produce a materials price variance?
    A) an excess quantity of materials used.
    B) an excess number of direct labor-hours worked in completing a job.
    C) shipping materials to the plant by air freight rather than by truck.
    D) breakage of materials in production.

    Answer: C Level: Easy LO: 2

25. The standard price per unit of materials is used in the calculation of which of the following variances?

	Materials price variance	*Materials quantity variance*
A)	No	No
B)	No	Yes
C)	Yes	No
D)	Yes	Yes

    Answer: D Level: Medium LO: 2 Source: CPA, adapted

26. A labor efficiency debit balance indicates that:
    A) The wage rate paid to production workers was less the standard.
    B) The wage rate paid to production workers was above the standard.
    C) Less labor time was spent on production than was called for by the standard.
    D) More labor time was spent on production than was called for by the standard.

    Answer: D Level: Hard LO: 3,7 Source: CPA, adapted Appendix: 10

27. When the actual wage rate paid to direct labor workers exceeds the standard wage rate, the journal entry would include:
    A) Credit to Wages Payable; Credit to Labor Rate Variance
    B) Credit to Work-In-Process; Credit to Labor Rate Variance
    C) Credit to Wages Payable; Debit to Labor Rate Variance
    D) Credit to Work-In-Process; Debit to Labor Rate Variance

    Answer: C Level: Medium LO: 3,7 Appendix: 10

28. When the actual wage rate paid to direct labor workers is less than the standard wage rate, the journal entry would include:
    A) Debit to Wages Payable; Credit to Labor Rate Variance
    B) Debit to Work-In-Process; Credit to Labor Rate Variance
    C) Debit to Wages Payable; Debit to Labor Rate Variance
    D) Debit to Work-In-Process; Debit to Labor Rate Variance

    Answer: B Level: Medium LO: 3,7 Appendix: 10

29. When the actual direct labor-hours exceed the standard direct labor-hours allowed for the actual output of the period, the journal entry would include:
    A) Credit to Wages Payable; Credit to Labor Efficiency Variance
    B) Credit to Work-In-Process; Credit to Labor Efficiency Variance
    C) Credit to Wages Payable; Debit to Labor Efficiency Variance
    D) Credit to Work-In-Process; Debit to Labor Efficiency Variance

    Answer: C Level: Medium LO: 3,7 Appendix: 10

30. Which of the following would produce a labor rate variance?
    A) Poor quality materials causing breakage and work interruptions.
    B) Use of persons with high hourly wage rates in tasks that call for low hourly wage rates.
    C) Excessive number of hours worked in completing a job.
    D) An unfavorable variable overhead spending variance.

    Answer: B Level: Medium LO: 3

31. In a certain standard costing system direct labor-hours are used as the base for applying variable manufacturing overhead costs. The standard direct labor rate is twice the variable manufacturing overhead rate. Last period the labor efficiency variance was unfavorable. From this information one can conclude that last period the variable overhead efficiency variance was:
    A) unfavorable and half the labor efficiency variance.
    B) favorable and half the labor efficiency variance.
    C) unfavorable and twice the labor efficiency variance.
    D) favorable and twice the labor efficiency variance.

    Answer: A Level: Medium LO: 4

32. A manager would like to see a decreasing trend in all of the following operating measures except:
    A) Customer complaints as a percentage of units sold.
    B) Scrap as a percentage of total cost.
    C) Setup time.
    D) Manufacturing cycle efficiency.

    Answer: D Level: Medium LO: 6

33. Which of the following will increase a company's manufacturing cycle efficiency (MCE)?

	Decrease in Inspection Time	*Decrease in Queue Time*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

    Answer: A Level: Medium LO: 6

34. If raw materials are carried in the raw materials inventory at standard cost, then it is reasonable to assume that:
    A) the price variance is recognized when materials are purchased.
    B) the price variance is recognized when materials are placed into production.
    C) all variances are prorated between work in process, finished goods, and cost of goods sold.
    D) the raw materials account is overstated.

    Answer: A Level: Medium LO: 7 Appendix: 10

35. Which of the following statements is a good description of the variances that should be investigated under the management by exception concept?
    A) all variances should be investigated.
    B) only unfavorable variances should be investigated.
    C) a small random sample of all variances should be investigated.
    D) unusually large favorable and unfavorable variances should be investigated.

    Answer: D Level: Medium LO: 8

36. The following direct labor information pertains to the manufacture of product Glu:

Time required to make one unit	2 direct labor-hours
Number of direct labor workers	50 workers
Number of productive hours per week, per worker.....	40 hours
Weekly wages per worker	$500
Workers' benefits treated as direct labor costs.....	20% of wages

    What is the standard direct labor cost per unit of product Glu?
    A) $30
    B) $24
    C) $15
    D) $12

    Answer: A Level: Medium LO: 1 Source: CPA, adapted

37. Anderson Company purchased 20,000 pounds of direct material at $0.70 per pound. The standard cost per pound of material is $0.60 per pound. The general ledger entry to record the issuance of materials would include:
    A) a debit to Materials Price Variance $2,000.
    B) a credit to Materials Price Variance of $2,000.
    C) a credit to Raw Materials of $0.70 per pound times the number of pounds issued.
    D) a credit to Raw Materials of $0.60 per pound times the number of pounds issued.

    Answer: D Level: Medium LO: 2,7 Appendix: 10

38. The following materials standards have been established for a particular raw material used in the company's sole product:

Standard quantity per unit of output.....	1.0 pound
Standard price.....	$16.60 per pound

The following data pertain to operations concerning the product for the last month:

Actual materials purchased	2,200 pounds
Actual cost of materials purchased.....	$34,650
Actual materials used in production.....	1,900 pounds
Actual output	2,100 units

What is the materials quantity variance for the month?
A) $3,320 F
B) $3,150 F
C) $4,980 U
D) $4,725 U

Answer: A Level: Easy LO: 2

39. The following materials standards have been established for a particular raw material used in the company's sole product:

Standard quantity per unit of output.....	0.1 pound
Standard price.....	$18.20 per pound

The following data pertain to operations for the last month:

Actual materials purchased	5,700 pounds
Actual cost of materials purchased.....	$100,320
Actual materials used in production.....	5,600 pounds
Actual output	55,800 units

What is the materials price variance for the month?
A) $1,820 U
B) $1,760 U
C) $3,420 F
D) $352 U

Answer: C Level: Easy LO: 2

40. A quantity of a particular raw material was purchased for $43,250. The standard cost of the material was $2.00 per kilogram and there was an unfavorable materials price variance of $3,250. How many kilograms were purchased?
    A) 20,000
    B) 21,625
    C) 23,250
    D) 24,875

    Answer: A Level: Hard LO: 2 Source: CIMA, adapted

41. A total of 6,850 kilograms of a raw material was purchased at a total cost of $21,920. The material price variance was $1,370 favorable. The standard price per kilogram for the raw material must be:
    A) $0.20
    B) $3.00
    C) $3.20
    D) $3.40

    Answer: D Level: Hard LO: 2 Source: CIMA, adapted

42. Results of operations for the Anderson Company indicated that the actual direct labor rate for the month of May was $9.75 while the standard rate was $10.00. The general ledger entry to record the incurrence of direct labor cost would include:
    A) a debit to Work-In-Process for the actual number of hours times $9.75 per hour.
    B) a debit to Work-In-Process for the standard number of hours times $10.00 per hour.
    C) a debit to Work-In-Process for the standard number of hours times $9.75 per hour.
    D) a debit to Work-In-Process for the actual number of hours times $10.00 per hour.

    Answer: B Level: Medium LO: 3,7 Appendix: 10

43. The following labor standards have been established for a particular product:

Standard labor-hours per unit of output	8.0 hours
Standard labor rate.....	$13.10 per hour

The following data pertain to operations concerning the product for the last month:

Actual hours worked	4,000 hours
Actual total labor cost.....	$53,000
Actual output	400 units

What is the labor efficiency variance for the month?
A) $10,600 U
B) $11,080 U
C) $11,080 F
D) $10,480 U

Answer: D Level: Easy LO: 3

44. The following labor standards have been established for a particular product:

Standard labor-hours per unit of output	2.4 hours
Standard labor rate.....	$15.45 per hour

The following data pertain to operations concerning the product for the last month:

Actual hours worked	5,400 hours
Actual total labor cost.....	$85,860
Actual output	2,200 units

What is the labor rate variance for the month?
A) $1,908 U
B) $2,430 U
C) $4,284 U
D) $4,284 F

Answer: B Level: Easy LO: 3

45. The following information pertains to Bates Company's direct labor for March:

Standard direct labor-hours	21,000
Actual direct labor-hours	20,000
Favorable direct labor rate variance	$8,400
Standard direct labor rate per hour	$6.30

What was Bates' total actual direct labor cost for March?
A) $117,600
B) $118,000
C) $134,000
D) $134,400

Answer: A Level: Hard LO: 3 Source: CPA, adapted

46. The direct labor standards for a particular product are:

4 hours of direct labor @ $12.00 per direct labor-hour = $48.00

During October, 3,350 units of this product were made, which was 150 units less than budgeted. The labor cost incurred was $159,786 and 13,450 direct labor-hours were worked. The direct labor variances for the month were:

	Labor Rate Variance	*Labor Efficiency Variance*
A)	$1,614 U	$600 U
B)	$1,614 U	$600 F
C)	$1,614 F	$600 U
D)	$1,614 F	$600 F

Answer: C Level: Medium LO: 3 Source: CIMA, adapted

47. The standard cost card of a particular product specifies that it requires 4.5 direct labor-hours at $12.80 per direct labor-hour. During March, 2,300 units of the product were produced and direct labor wages of $128,300 were incurred. A total of 11,700 direct labor-hours were worked. The direct labor variances for the month were:

	Labor Rate Variance	*Labor Efficiency Variance*
A)	$4,180 F	$14,804 U
B)	$4,180 F	$17,280 U
C)	$21,460 F	$14,804 U
D)	$21,460 F	$17,280 U

Answer: D Level: Easy LO: 3 Source: CIMA, adapted

48. The following standards for variable manufacturing overhead have been established for a company that makes only one product:

Standard hours per unit of output	5.6 hours
Standard variable overhead rate	$19.15 per hour

The following data pertain to operations for the last month:

Actual hours	5,100 hours
Actual total variable overhead cost	$99,195
Actual output	1,100 units

What is the variable overhead efficiency variance for the month?
A) $20,299 F
B) $18,769 F
C) $1,848 F
D) $20,617 F

Answer: A Level: Easy LO: 4

49. The following standards for variable manufacturing overhead have been established for a company that makes only one product:

Standard hours per unit of output	2.8 hours
Standard variable overhead rate	$16.30 per hour

The following data pertain to operations for the last month:

Actual hours	7,600 hours
Actual total variable overhead cost	$127,300
Actual output	2,500 units

What is the variable overhead spending variance for the month?
A) $3,420 U
B) $3,150 F
C) $10,050 U
D) $13,200 U

Answer: A Level: Easy LO: 4

50. Sanchez Custom Yachts, Inc. manufactures and sells luxury yachts. From the time an order is placed till the time the yacht reaches the customer averages 200 days. These 200 days are spent as follows:

Wait time	50 days
Move time.....	10 days
Process time.....	90 days
Queue time	30 days
Inspection time	20 days

What is Sanchez's manufacturing cycle efficiency (MCE) for its yachts?
A) 0.45
B) 0.50
C) 0.60
D) 0.65

Answer: C Level: Medium LO: 6

51. During the month of May, Domino Manufacturing Corporation purchased materials that had a total standard cost of $57,000. The Materials Price Variance on these materials was $3,000 favorable. What summary journal entry would Domino make to record this purchase and variance for May?

A)	Work in Process	57,000	
	Materials Price Variance	3,000	
	Raw Materials		60,000
B)	Work in Process	54,000	
	Materials Price Variance	3,000	
	Raw Materials		57,000
C)	Raw Materials	57,000	
	Materials Price Variance		3,000
	Accounts Payable		54,000
D)	Raw Materials	57,000	
	Materials Price Variance	3,000	
	Accounts Payable		60,000

Answer: C Level: Easy LO: 7 Appendix: 10

Use the following to answer questions 52-54:

Stench Foods Company uses a standard cost system to collect costs related to the production of its garlic flavored yogurt. The garlic (materials) standards for each container of yogurt produced are 0.8 ounces of crushed garlic at a standard cost of $2.30 per ounce.

During the month of June, Stench purchased 75,000 ounces of crushed garlic at a total cost of $171,000. Stench used 64,000 of these ounces to produce 71,500 containers of yogurt.

52. What is Stench's materials price variance for the month of June?
    A) $1,500 favorable
    B) $15,640 unfavorable
    C) $17,250 favorable
    D) $23,800 favorable

    Answer: A Level: Medium LO: 2

53. What is Stench's materials quantity variance for the month of June?
    A) $1,500 favorable
    B) $15,640 unfavorable
    C) $17,250 favorable
    D) $23,800 favorable

    Answer: B Level: Medium LO: 2

54. Assume that it takes 15 minutes of labor time to crush enough garlic to fill one container of yogurt. Because the smell of the garlic can be unbearable, workers are given (and they take it!) 10 minutes of break time every hour (i.e., 50 minutes of work, 10 minutes of break). How many minutes should Stench use as a standard quantity of labor time per container of yogurt?
    A) 18.0
    B) 16.2
    C) 17.0
    D) 17.5

    Answer: A Level: Medium LO: 1

Use the following to answer questions 55-57:

Holiday Chemical Company uses a standard cost system to collect costs related to the production of its "bowling ball" fruitcakes. The direct labor standard for each fruitcake is 1.25 hours at a standard cost of $11.00 per hour. During the month of November, Holiday's fruitcake production used 9,820 direct labor hours at a total direct labor cost of $106,547. This resulted in production of 8,500 fruitcakes for November.

55. What is Holiday's labor rate variance for November?
    A) $8,855 favorable
    B) $1,473 favorable
    C) $13,047 unfavorable
    D) $14,520 unfavorable

    Answer: B Level: Medium LO: 3

56. What is Holiday's labor efficiency variance for November?
    A) $8,855 favorable
    B) $10,328 favorable
    C) $13,047 unfavorable
    D) $14,520 unfavorable

    Answer: A Level: Medium LO: 3

57. Assume that 7 ounces of pecans are included in each bowling ball fruitcake. Because Holiday wants only the best pecans in its fruitcakes, the pecans they buy are inspected and some are discarded as unacceptable for fruitcake production. The loss rate is expected to be 1 ounce of pecans for every 5 ounces inspected. Under traditional standard costing, how many ounces of pecans should Holiday use as a standard quantity per fruitcake?
    A) 7.20
    B) 7.80
    C) 8.40
    D) 8.75

    Answer: D Level: Medium LO: 1

Use the following to answer questions 58-59:

Debit Dave and his four teaching assistants grade all 1,000 of their managerial accounting exams as a group. The average number of exams graded per hour by each person is as follows:

	Debit Dave	Joanne	Karen	Andy	Tom
Number of exams	45	32	28	25	20

Debit Dave is considering the above information in setting a standard for grading the next examination.

58. Which amount above best represents a practical standard?
    A) 45
    B) 32
    C) 25
    D) 20

    Answer: B Level: Easy LO: 1

59. Which amount above best represents an ideal standard?
    A) 45
    B) 32
    C) 25
    D) 20

    Answer: A Level: Easy LO: 1

Use the following to answer questions 60-65:

Pardoe, Inc., manufactures a single product in which variable manufacturing overhead is assigned on the basis of direct labor hours. The company uses a standard cost system and has established the following standards for one unit of product:

	Standard Quantity	*Standard Price or Rate*	*Standard Cost*
Direct materials	1.5 pounds	$3.00 per pound	$4.50
Direct labor.....	0.6 hours	$6.00 per hour	$3.60
Variable manufacturing overhead .	0.6 hours	$1.25 per hour	$0.75

During March, the following activity was recorded by the company:

- The company produced 3,000 units during the month.
- A total of 8,000 pounds of material were purchased at a cost of $23,000.
- There was no beginning inventory of materials on hand to start the month; at the end of the month, 2,000 pounds of material remained in the warehouse.
- During March, 1600 direct labor hours were worked at a rate of $6.50 per hour.
- Variable manufacturing overhead costs during March totaled $1,800.

60. The materials price variance for March is:
    A) $1,000 F
    B) $1,000 U
    C) $750 F
    D) $750 U

    Answer: A Level: Medium LO: 2

61. The materials quantity variance for March is:
    A) $4,500 F
    B) $10,500 F
    C) $10,500 U
    D) $4,500 U

    Answer: D Level: Medium LO: 2

62. The labor rate variance for March is:
    A) $480 U
    B) $800 U
    C) $480 F
    D) $800 F

    Answer: B Level: Easy LO: 3

63. The labor efficiency variance for March is:
    A) $5,040 U
    B) $1,200 U
    C) $1,200 F
    D) $5,040 F

    Answer: C Level: Easy LO: 3

64. The variable overhead spending variance for March is:
    A) $200 U
    B) $600 U
    C) $600 F
    D) $200 F

    Answer: D Level: Easy LO: 4

65. The variable overhead efficiency variance for March is:
    A) $1,050 F
    B) $1,050 U
    C) $250 F
    D) $250 U

    Answer: C Level: Easy LO: 4

Use the following to answer questions 66-67:

The following data pertain to Nell Company's operations for June:

Standard quantity of materials per unit of product.....	5 pounds
Standard cost of materials per pound.....	$0.20
Standard direct labor hours	0.04 hours
Standard wage rate per hour.....	$7.00
Actual output.....	100,000 units
Materials purchased	100,000 pounds
Actual cost of materials purchased per pound	$0.17
Materials used	60,000 pounds
Actual direct labor hours required.....	3,900 hours
Actual direct labor cost per hour.....	$7.20

The materials price variance is recognized when materials are purchased.

66. Nell's materials price variance for June was:
    A) $3,000 favorable
    B) $3,000 unfavorable
    C) $2,000 favorable
    D) $2,000 unfavorable

    Answer: A Level: Medium LO: 2 Source: CMA, adapted

67. Nell's labor efficiency variance for June was:
    A) $780 favorable
    B) $780 unfavorable
    C) $700 favorable
    D) $700 unfavorable

    Answer: C Level: Medium LO: 3 Source: CMA, adapted

Use the following to answer questions 68-71:

The Collins Company uses standard costing and has established the following direct material and direct labor standards for each unit of the single product it makes:

Direct materials	4 gallons at $8 per gallon
Direct labor.....	1 hour at $16 per hour

During July, the company made 6,000 units of product and incurred the following costs:

Direct materials purchased.....	26,800 gallons at $8.20 per gallon
Direct materials used.....	25,200 gallons
Direct labor used	5,600 hours at $15.30 per hour

68. The material price variance for July was:
    A) $5,360 favorable
    B) $5,360 unfavorable
    C) $5,040 favorable
    D) $5,040 unfavorable

    Answer: B Level: Easy LO: 2

69. The materials quantity variance for July was:
    A) $22,960 unfavorable
    B) $22,400 unfavorable
    C) $9,600 unfavorable
    D) $9,840 unfavorable

    Answer: C Level: Easy LO: 2

70. The labor rate variance for July was:
    A) $3,920 unfavorable
    B) $6,120 unfavorable
    C) $1,120 favorable
    D) $3,920 favorable

    Answer: D Level: Easy LO: 3

71. The labor efficiency variance for July was:
    A) $6,400 favorable
    B) $89,600 favorable
    C) $10,320 favorable
    D) $6,120 favorable

    Answer: A Level: Easy LO: 3

Use the following to answer questions 72-75:

Jackson Industries employs a standard cost system in which direct materials inventory is carried at standard cost. Jackson has established the following standards for one unit of product.

	Standard Quantity	*Standard Price or Rate*	*Standard Cost*
Direct materials	5 pounds	$3.60 per pound	$18.00
Direct labor.....	1.25 hours	$12.00 per hour	$15.00

During May, Jackson purchased 125,000 pounds of direct material at a total cost of $475,000. The total factory wages for May were $364,000, 90 percent of which were for direct labor. Jackson manufactured 22,000 units of product during May using 108,000 pounds of direct material and 28,000 direct labor hours.

72. The price variance for the direct material acquired by Jackson Industries during May is:
    A) $21,600 favorable
    B) $25,000 unfavorable
    C) $28,000 favorable
    D) $21,600 unfavorable

    Answer: B Level: Easy LO: 2 Source: CMA, adapted

73. The direct material quantity variance for May is:
    A) $7,200 unfavorable
    B) $7,600 favorable
    C) $5,850 unfavorable
    D) $7,200 favorable

    Answer: D Level: Easy LO: 2 Source: CMA, adapted

74. The direct labor rate variance for May is:
    A) $8,400 favorable
    B) $7,200 unfavorable
    C) $8,400 unfavorable
    D) $6,000 favorable

    Answer: A Level: Medium LO: 3 Source: CMA, adapted

75. The direct labor efficiency variance for May is:
    A) $5,850 favorable
    B) $7,200 favorable
    C) $6,000 unfavorable
    D) $5,850 unfavorable

    Answer: C Level: Easy LO: 3 Source: CMA, adapted

Use the following to answer questions 76-79:

Arrow Industries employs a standard cost system in which direct materials inventory is carried at standard cost. Arrow has established the following standards for one unit of product.

	Standard Quantity	*Standard Price or Rate*	*Standard Cost*
Direct material.....	8 pounds	$1.80 per pound	$14.40
Direct labor.....	0.25 hour	$8.00 per hour	$2.00

During November, Arrow purchased 160,000 pounds of direct material at a total cost of $304,000. The total factory wages for November were $42,000, 90 percent of which were for direct labor. Arrow manufactured 19,000 units of product during November using 142,500 pounds of direct material and 5,000 direct labor hours.

76. The direct material price variance for November is:
    A) $16,000 favorable
    B) $16,000 unfavorable
    C) $14,250 favorable
    D) $14,250 unfavorable

    Answer: B Level: Easy LO: 2 Source: CMA, adapted

77. The direct material quantity variance for November is:
    A) $14,400 unfavorable
    B) $1,100 favorable
    C) $17,100 unfavorable
    D) $17,100 favorable

    Answer: D Level: Easy LO: 2 Source: CMA, adapted

78. The direct labor rate variance for November is:
    A) $2,200 favorable
    B) $1,900 unfavorable
    C) $2,000 unfavorable
    D) $2,090 favorable

    Answer: A Level: Medium LO: 3 Source: CMA, adapted

79. The direct labor efficiency variance for November is:
    A) $2,200 favorable
    B) $2,000 favorable
    C) $2,000 unfavorable
    D) $1,800 unfavorable

    Answer: C Level: Easy LO: 3 Source: CMA, adapted

Use the following to answer questions 80-84:

The Dresden Company uses standard costing for the single product the company makes and sells. The following data are for the month of April:

- Actual cost of direct material purchased and used: $62,400
- Material price variance: $4,800 unfavorable
- Total materials variance: $14,400 unfavorable
- Standard cost per pound of material: $6
- Standard cost per direct labor hour: $8
- Actual direct labor hours: 3,800 hours
- Labor efficiency variance: $1,600 favorable
- Standard number of direct labor hour per unit of product: 2
- Total labor variance: $680 unfavorable

80. The total number of units produced during April was:
    A) 8,000
    B) 12,000
    C) 2,000
    D) 3,800

    Answer: C Level: Hard LO: 2

81. The standard quantity of material allowed to produce one unit of product was:
    A) 1 pound
    B) 4 pounds
    C) 6 pounds
    D) 2 pounds

    Answer: B Level: Hard LO: 2

82. The actual material cost per pound was:
    A) $6.50
    B) $6.00
    C) $5.00
    D) $7.20

    Answer: A Level: Hard LO: 2

83. The actual direct labor rate per hour was:
    A) $16.00
    B) $6.50
    C) $8.00
    D) $8.60

    Answer: D Level: Hard LO: 3

84. The labor rate variance was:
    A) $2,280 favorable
    B) $2,280 unfavorable
    C) $920 favorable
    D) $920 unfavorable

    Answer: B Level: Hard LO: 3

Use the following to answer questions 85-86:

The following materials standards have been established for a particular product:

Standard quantity per unit of output.....	9.6 meters
Standard price.....	$14.80 per meter

The following data pertain to operations concerning the product for the last month:

Actual materials purchased	2,600 meters
Actual cost of materials purchased	$37,830
Actual materials used in production.....	2,200 meters
Actual output.....	400 units

85. What is the materials price variance for the month?
    A) $650 F
    B) $550 U
    C) $550 F
    D) $650 U

    Answer: A Level: Easy LO: 2

86. What is the materials quantity variance for the month?
    A) $5,820 U
    B) $24,272 F
    C) $5,920 U
    D) $23,862 F

    Answer: B Level: Easy LO: 2

Use the following to answer questions 87-88:

Blaster, Inc., manufactures portable radios. Each radio requires 3 units of Part XBEZ52, which has a standard cost of $1.45 per unit. During May, the company purchased 12,000 units of the part for a total of $18,000. Also during May, the company manufactured 3,000 radios, using 10,000 units of part XBEZ52.

87. During May, the materials price variance for part XBEZ52 was:
    A) $450 U
    B) $450 F
    C) $600 F
    D) $600 U

    Answer: D Level: Easy LO: 2

88. During May, the materials quantity variance for part XBEZ52 was:
    A) $1,450 U
    B) $1,450 F
    C) $4,350 F
    D) $4,350 U

    Answer: A Level: Easy LO: 2

Use the following to answer questions 89-90:

The following labor standards have been established for a particular product:

Standard labor hours per unit of output.....	7.7 hours
Standard labor rate	$15.55 per hour

The following data pertain to operations concerning the product for the last month:

Actual hours worked	9,800 hours
Actual total labor cost	$151,900
Actual output.....	1,200 units

89. What is the labor rate variance for the month?
    A) $490 F
    B) $60 F
    C) $60 U
    D) $490 U

    Answer: A Level: Easy LO: 3

90. What is the labor efficiency variance for the month?
    A) $8,680 U
    B) $8,708 U
    C) $8,218 F
    D) $8,218 U

    Answer: B Level: Easy LO: 3

Use the following to answer questions 91-92:

A product's standard cost card specifies that a unit of the product requires 4 direct labor-hours. During September, 3,350 units were made, which was 150 units less than budgeted. The total budgeted direct labor cost for September was $117,600. The direct labor cost incurred during September was $111,850 and 13,450 direct labor-hours were worked.

91. The direct labor rate variance for the month was:
    A) $5,750 F
    B) $5,750 U
    C) $1,130 F
    D) $1,130 U

    Answer: C Level: Hard LO: 3

92. The direct labor efficiency variance for the month was:
    A) $420.00 U
    B) $420.00 F
    C) $415.80 U
    D) $415.80 F

    Answer: A Level: Hard LO: 3

Use the following to answer questions 93-94:

The following standards for variable manufacturing overhead have been established for a company that makes only one product:

Standard hours per unit of output	3.2 hours
Standard variable overhead rate	$12.70 per hour

The following data pertain to operations for the last month:

Actual hours	1,600 hours
Actual total variable overhead cost	$19,600
Actual output	400 units

93. What is the variable overhead spending variance for the month?
    A) $3,344 F
    B) $720 U
    C) $3,344 U
    D) $720 F

    Answer: D Level: Easy LO: 4

94. What is the variable overhead efficiency variance for the month?
    A) $576 U
    B) $4,064 U
    C) $3,920 U
    D) $3,920 F

    Answer: B Level: Easy LO: 4

Use the following to answer questions 95-96:

The Maxwell Company has a standard costing system in which variable manufacturing overhead is assigned to production on the basis of machine hours. The following data are available for July:

- Actual variable manufacturing overhead cost incurred: $22,620
- Actual machine hours worked: 1,600
- Variable overhead spending variance: $3,420 unfavorable
- Total variable overhead variance: $4,620 unfavorable

95. The variable overhead efficiency variance for July is:
    A) $8,040 unfavorable
    B) $8,040 favorable
    C) $1,200 unfavorable
    D) $1,200 favorable

    Answer: C Level: Medium LO: 4

96. The standard number of machine hours allowed for July production is:
    A) 1,500 hours
    B) 1,600 hours
    C) 1,700 hours
    D) 2,270 hours

    Answer: A Level: Hard LO: 4

Use the following to answer questions 97-98:

Vermeillen Corporation uses a standard costing system in which variable manufacturing overhead is assigned to production on the basis of the number of machine setups. The following data pertain to one month's operations:

- Variable manufacturing overhead cost incurred: $70,000
- Total variable overhead variance: $4,550 favorable
- Standard machine setups allowed for actual production: 3,550
- Actual machine setups incurred: 3,500

97. The standard variable overhead rate per machine setup is:
    A) $20.00
    B) $21.30
    C) $18.44
    D) $21.00

    Answer: D Level: Hard LO: 4

98. The variable overhead spending variance is:
    A) $1,000 favorable
    B) $1,000 unfavorable
    C) $3,500 unfavorable
    D) $3,500 favorable

    Answer: D Level: Hard LO: 4

Use the following to answer questions 99-101:

The following data pertain to operations at Quick Incorporated:

Throughput time.....	4 hours
Delivery cycle time	8 hours
Process time	1 hour
Queue time	2 hours

99. The wait time for this operation would be:
    A) 4 hours
    B) 2 hours
    C) 8 hours
    D) cannot be determined from information provided

    Answer: A Level: Medium LO: 6

100. The combined inspection and move time for this operation would be:
A) 4 hours
B) 1 hour
C) 2 hours
D) cannot be determined from information provided

Answer: B Level: Medium LO: 6

101. The manufacturing cycle efficiency (MCE) for this operation would be:
A) 50%
B) 75%
C) 25%
D) 12´%

Answer: C Level: Easy LO: 6

Essay Questions

102. The following standards have been established for a raw material used in the production of product G13:

Standard quantity of the material per unit of output	2.3 liters
Standard price of the material	$19.00 per liter

The following data pertain to a recent month's operations:

Actual material purchased	5,100 liters
Actual cost of material purchased	$100,725
Actual material used in production	4,700 liters
Actual output	2,040 units of product G13

Required:
a. What is the materials price variance for the month?
b. What is the materials quantity variance for the month?
c. Prepare journal entries to record the purchase and use of the raw material during the month. (All raw materials are purchased on account.)

Level: Medium LO: 2,7 Appendix: 10

Answer:

a. Materials price variance = (AQ × AP) – (AQ × SP)
= $100,725 – (5,100 × $19.00) = $3,825 U

b. Materials quantity variance = SP(AQ – SQ*)
= $19.00(4,700 – 4,692) = $152 U

*SQ = Standard quantity per unit × Actual output
= 2.3 × 2,040 = 4,692

c. Journal entries to record the purchase and use of the raw material:

Record the purchase of the raw material:

Raw Materials	96,900	
Materials Price Variance	3,825	
Accounts Payable		100,725

Record the use of the raw material:

Work In Process	89,148	
Materials Quantity Variance	152	
Raw Materials		89,300

103. The standards for product F28 call for 2.7 pounds of a raw material that costs $16.50 per pound. Last month, 4,100 pounds of the raw material were purchased for $70,520. The actual output of the month was 1,300 units of product F28. A total of 3,500 pounds of the raw material were used to produce this output.

Required:

a. What is the materials price variance for the month?
b. What is the materials quantity variance for the month?
c. Prepare journal entries to record the purchase and use of the raw material during the month. (All raw materials are purchased on account.)

Level: Medium LO: 2,7 Appendix: 10

Answer:

a. Materials price variance = (AQ × AP) – (AQ × SP)
= $70,520 – (4,100 × $16.50) = $2,870 U

b. Materials quantity variance = SP(AQ – SQ*)
= $16.50(3,500 – 3,510) = $165 F

*SQ = Standard quantity per unit × Actual output
= 2.7 × 1,300 = 3,510

c. Journal entries to record the purchase and use of the raw material:

Record the purchase of the raw material:

Raw Materials	67,650	
Materials Price Variance	2,870	
Accounts Payable		70,520

Record the use of the raw material:

Work In Process	57,915	
Materials Quantity Variance		165
Raw Materials		57,750

104. The following materials standards have been established for a particular product:

Standard quantity per unit of output	0.2 grams
Standard price	$18.90 per gram

The following data pertain to operations concerning the product for the last month:

Actual materials purchased	4,800 grams
Actual cost of materials purchased	$86,880
Actual materials used in production	4,200 grams
Actual output	21,080 units

Required:

a. What is the materials price variance for the month?
b. What is the materials quantity variance for the month?

Level: Easy LO: 2

Answer:

a. Materials price variance = (AQ × AP) – (AQ × SP)
= $86,880 – (4,800 × $18.90) = $3,840 F

SQ = Standard quantity per unit × Actual output
= 0.2 × 21,080 = 4,216

b. Materials quantity variance = SP(AQ – SQ)
= $18.90(4,200 – 4,216) = $302 F

105. The following standards have been established for a raw material used to make product I92:

Standard quantity of the material per unit of output ...	4.5 pounds
Standard price of the material	$13.90 per pound

The following data pertain to a recent month's operations:

Actual material purchased	2,000 pounds
Actual cost of material purchased	$26,200
Actual material used in production	1,300 pounds
Actual output	220 units of product I92

Required:

a. What is the materials price variance for the month?
b. What is the materials quantity variance for the month?

Level: Easy LO: 2

Answer:

a. Materials price variance = (AQ × AP) – (AQ × SP)
= $26,200 – (2,000 × $13.90) = $1,600 F

b. Materials quantity variance = SP(AQ – SQ*)
= $13.90(1,300 – 990) = $4,309 U

*SQ = Standard quantity per unit × Actual output
= 4.5 × 220 = 990

106. The standards for product K17 call for 5.0 meters of a raw material that costs $19.10 per meter. Last month, 2,700 meters of the raw material were purchased for $51,435. The actual output of the month was 460 units of product K17. A total of 2,500 meters of the raw material were used to produce this output.

Required:
a. What is the materials price variance for the month?
b. What is the materials quantity variance for the month?

Level: Easy LO: 2

Answer:
a. Materials price variance = (AQ × AP) – (AQ × SP)
= $51,435 – (2,700 × $19.10) = $135 F

b. Materials quantity variance = SP(AQ – SQ*)
= $19.10(2,500 – 2,300) = $3,820 U

*SQ = Standard quantity per unit × Actual output
= 5.0 × 460 = 2,300

107. The following direct labor standards have been established for product N30A:

Standard direct labor-hours	3.3 hours per unit of N30A
Standard direct labor wage rate	$10.50 per hour

The following data pertain to the most recent month's operations during which 400 units of product N30A were made:

Actual direct labor-hours worked.....	1,100
Actual direct labor wages paid	$11,385

Required:
a. What was the labor rate variance for the month?
b. What was the labor efficiency variance for the month?
c. Prepare a journal entry to record direct labor costs during the month, including the direct labor variances.

Level: Medium LO: 3,7 Appendix: 10

Answer:

a. Labor rate variance = (AH × AR) – (AH × SR)
= $11,385 – (1,100 × $10.50) = $165 F

b. Labor efficiency variance = SR(AH – SH*)
= $10.50 (1,100 – 1,320) = $2,310 F

*SH = Standard hours per unit × Actual output
= 3.3 × 400 = 1,320

c. Journal entries to record the direct labor costs:

Work In Process	13,860	
Labor Rate Variance		165
Labor Efficiency Variance		2,310
Wages Payable (or Cash)		11,385

108. The standards for product Q58W specify 8.4 direct labor-hours per unit at $14.00 per direct labor-hour. Last month 400 units of product Q58W were produced using 2,800 direct labor-hours at a total direct labor wage cost of $41,020.

Required:

a. What was the labor rate variance for the month?
b. What was the labor efficiency variance for the month?
c. Prepare a journal entry to record direct labor costs during the month, including the direct labor variances.

Level: Medium LO: 3,7 Appendix: 10

Answer:

a. Labor rate variance = (AH × AR) – (AH × SR)
= $41,020 – (2,800 × $14.00) = $1,820 U

b. Labor efficiency variance = SR(AH – SH*)
= $14.00 (2,800 – 3,360) = $7,840 F

*SH = Standard hours per unit × Actual output
= 8.4 × 400 = 3,360

c. Journal entries to record the direct labor costs:

Work In Process	47,040	
Labor Rate Variance	1,820	
Labor Efficiency Variance		7,840
Wages Payable (or Cash)		41,020

109. The following labor standards have been established for a particular product:

Standard labor hours per unit of output.....	3.2 hours
Standard labor rate.....	$19.10 per hour

The following data pertain to operations concerning the product for the last month:

Actual hours worked	5,500 hours
Actual total labor cost.....	$105,050
Actual output	1,900 units

Required:

a. What is the labor rate variance for the month?
b. What is the labor efficiency variance for the month?

Level: Easy LO: 3

Answer:

a. Labor rate variance = (AH × AR) – (AH × SR)
= $105,050 – (5,500 × $19.10) = $0 U

SH = Standard hours per unit × Actual output
= 3.2 × 1,900 = 6,080

b. Labor efficiency variance = SR(AH – SH)
= $19.10(5,500 – 6,080) = $11,078 F

110. The following direct labor standards have been established for product S57S:

Standard direct labor-hours	1.5 hours per unit of S57S
Standard direct labor wage rate	$14.70 per hour

The following data pertain to last month's operations:

Actual output of product S57S	720 units
Actual direct labor-hours worked.....	1,000
Actual direct labor wages paid	$14,800

Required:
a. What was the labor rate variance for the month?
b. What was the labor efficiency variance for the month?

Level: Easy LO: 3

Answer:
a. Labor rate variance = (AH × AR) – (AH × SR)
= $14,800 – (1,000 × $14.70) = $100 U

b. Labor efficiency variance = SR(AH – SH*)
= $14.70 (1,000 – 1,080) = $1,176 F

*SH = Standard hours per unit × Actual output
= 1.5 × 720 = 1,080

111. The standards for product F88W specify 3.4 direct labor-hours per unit at $13.00 per direct labor-hour. Last month 800 units of product F88W were produced using 2,500 direct labor-hours at a total direct labor wage cost of $30,500.

Required:
a. What was the labor rate variance for the month?
b. What was the labor efficiency variance for the month?

Level: Easy LO: 3

Answer:

a. Labor rate variance = (AH × AR) – (AH × SR)
= $30,500 – (2,500 × $13.00)
= $2,000 F

b. Labor efficiency variance = SR(AH – SH*)
= $13.00 (2,500 – 2,720)
= $2,860 F

*SH = Standard hours per unit × Actual output
= 3.4 × 800 = 2,720

112. The following standards for variable manufacturing overhead have been established for a company that makes only one product:

Standard hours per unit of output	0.6 hours
Standard variable overhead rate	$17.55 per hour

The following data pertain to operations for the last month:

Actual hours	6,200 hours
Actual total variable overhead cost	$110,670
Actual output	10,200 units

Required:

a. What is the variable overhead spending variance for the month?
b. What is the variable overhead efficiency variance for the month?

Level: Easy LO: 4

Answer:

a. Variable overhead spending variance = (AH × AR) – (AH × SR)
= $110,670 – (6,200 × $17.55) = $1,860 U

SH = Standard hours per unit × Actual output
= 0.6 × 10,200 = 6,120

b. Variable overhead efficiency variance = SR(AH – SH)
= $17.55(6,200 – 6,120) = $1,404 U

113. Deschamp Corporation's variable manufacturing overhead is applied on the basis of direct labor-hours. The company has established the following variable manufacturing overhead standards for product O28H:

Standard direct labor-hours	2.5 hours per unit of O28H
Standard variable manufacturing overhead rate	$7.70 per hour

The following data pertain to the most recent month's operations during which 2,160 units of product O28H were made:

Actual direct labor-hours worked	5,200
Actual variable manufacturing overhead incurred	$44,980

Required:
a. What was the variable overhead spending variance for the month?
b. What was the variable overhead efficiency variance for the month?

Level: Easy LO: 4

Answer:
a. Variable overhead spending variance = (AH × AR) – (AH × SR)
= $44,980 – (5,200 × $7.70) = $4,940 U

b. Variable overhead efficiency variance = SR(AH – SH*)
= $7.70(5,200 – 5,400) = $1,540 F

*SH = Standard hours per unit × Actual output
= 2.5 × 2,160 = 5,400

114. Shawl Corporation's variable manufacturing overhead is applied on the basis of direct labor-hours. The standard cost card for product F02E specifies 5.5 direct labor-hours per unit of F02E. The standard variable manufacturing overhead rate is $6.80 per direct labor-hour. During the most recent month, 1,560 units of product F02E were made and 8,700 direct labor-hours were worked.
The actual variable manufacturing overhead incurred was $52,635.

Required:
a. What was the variable overhead spending variance for the month?
b. What was the variable overhead efficiency variance for the month?

Level: Easy LO: 4

Answer:

a. Variable overhead spending variance = (AH × AR) – (AH × SR)
= $52,635 – (8,700 × $6.80) = $6,525 F

b. Variable overhead efficiency variance = SR(AH – SH*)
= $6.80(8,700 – 8,580) = $816 U

*SH = Standard hours per unit × Actual output
= 5.5 × 1,560 = 8,580

115. Pardun Corporation's management keeps track of the time it takes to process orders. During the most recent month, the following average times were recorded per order:

	Days
Wait time	15.6
Inspection time	0.8
Process time.....	1.6
Move time.....	0.7
Queue time	3.9

Required:

a. Compute the throughput time.
b. Compute the manufacturing cycle efficiency (MCE).
c. What percentage of the production time is spent in non-value-added activities?
d. Compute the delivery cycle time.

Level: Easy LO: 6

Answer:

a. Throughput time
= Process time + Inspection time + Move time + Queue time
= 1.6 days + 0.8 days + 0.7 days + 3.9 days = 7.0 days

b. MCE = Value-added time (Process time) ÷ Throughput time
= 1.6 days ÷ 7.0 days = 0.23

c. Percentage of time spent on non-value-added activities
= 100% – MCE% = 100% – 23% = 77%

d. Delivery cycle time = Wait time + Throughput time
= 15.6 days + 7.0 days = 22.6 days

116. During the most recent month at Luinstra Corporation, queue time was 4.5 days, inspection time was 0.8 day, process time was 1.9 days, wait time was 5.1 days, and move time was 0.7 day.

Required:
a. Compute the throughput time.
b. Compute the manufacturing cycle efficiency (MCE).
c. What percentage of the production time is spent in non-value-added activities?
d. Compute the delivery cycle time.

Level: Medium LO: 6

Answer:
a. Throughput time
= Process time + Inspection time + Move time + Queue time
= 1.9 days + 0.8 days + 0.7 days + 4.5 days = 7.9 days

b. MCE = Value-added time (Process time) ÷ Throughput time
= 1.9 days ÷ 7.9 days = 0.24

c. Percentage of time spent on non-value-added activities
= 100% – MCE% = 100% – 24% = 76%

d. Delivery cycle time = Wait time + Throughput time
= 5.1 days + 7.9 days = 13.0 days

117. Rintharamy Corporation's management reports that its average delivery cycle time is 25.2 days, its average throughput time is 7.6 days, its manufacturing cycle efficiency (MCE) is 0.25, its average move time is 0.9 day, and its average queue time is 4.0 days.

Required:
a. What is the wait time?
b. What is the process time?
c. What is the inspection time?

Level: Hard LO: 6

Answer:

a. Delivery cycle time = Wait time + Throughput time
   25.2 days = Wait time + 7.6 days
   Wait time = 25.2 days – 7.6 days = 17.6 days

b. MCE = Process time ÷ Throughput time
   0.25 = Process time ÷ 7.6 days
   Process time = 0.25 × 7.6 days = 1.9 days

c. Throughput time = Process time + Inspection time + Move time + Queue time
   7.6 days = 1.9 days + Inspection time + 0.9 days + 4.0 days
   Inspection time = 7.6 days – 1.9 days – 0.9 days – 4.0 days = 0.8 days

Chapter 11 Flexible Budgets and Overhead Analysis

True/False Questions

1. Fixed costs should not be included in a flexible budget since such costs are not likely to be controllable by managers.

   Answer: False Level: Medium LO: 1

2. It is not important that the activity base and overhead costs be causally related when developing a flexible budget.

   Answer: False Level: Easy LO: 1

3. The activity base for a flexible budget should usually be expressed in units of activity rather than in dollars.

   Answer: True Level: Easy LO: 1

4. The static budget should be used primarily to determine whether cost control is being maintained.

   Answer: False Level: Easy LO: 1

5. A company that wants to report both spending and efficiency variances for overhead must compute budget allowances for both the actual amount of activity that occurred and the standard level of activity allowed for the level of output achieved.

   Answer: True Level: Medium LO: 4

6. Responsibility for the overhead efficiency variance should be assigned to whoever is responsible for control of the activity base underlying the flexible budget.

   Answer: True Level: Easy LO: 4

7. A favorable variable overhead efficiency variance indicates that overhead has been used efficiently.

   Answer: False Level: Medium LO: 4

8. A company has a standard cost system in which fixed and variable manufacturing overhead costs are applied to products on the basis of direct labor-hours. The company's choice of the denominator level of activity has no effect on the fixed overhead budget variance.

   Answer: True Level: Medium LO: 5,6

9. In a standard cost system, overhead is applied on the basis of the actual level of activity rather than the standard level of activity allowed for the output of a period.

   Answer: False Level: Medium LO: 5

10. A company has a standard cost system in which fixed and variable manufacturing overhead costs are applied to products on the basis of direct labor-hours. The company's choice of the denominator level of activity has no effect on the fixed portion of the predetermined overhead rate.

    Answer: False Level: Easy LO: 5

11. The budget variance for fixed overhead represents the difference between actual fixed overhead costs incurred and the amount of fixed overhead applied to work in process.

    Answer: False Level: Medium LO: 6

12. There can be no volume variance for variable overhead.

    Answer: True Level: Medium LO: 6

13. An unfavorable volume variance means that a company operated at an activity level greater than that planned for the period.

    Answer: False Level: Medium LO: 6

14. The volume variance for fixed overhead is an activity-related variance based on the difference between the denominator level of activity and the standard level of activity allowed for the output of a period.

    Answer: True Level: Medium LO: 6

15. A company has a standard cost system in which fixed and variable manufacturing overhead costs are applied to products on the basis of direct labor-hours. A fixed overhead volume variance will NOT necessarily occur in a month in which production volume differs from sales volume.

    Answer: True Level: Hard LO: 6

Multiple Choice Questions

16. When using a flexible budget, what will occur to fixed costs as the activity level increases within the relevant range?
    A) fixed costs per unit will decrease.
    B) fixed costs per unit will remain unchanged.
    C) fixed costs per unit will increase.
    D) fixed costs are not considered in flexible budgeting.

    Answer: A Level: Easy LO: 1 Source: CPA, adapted

17. A major disadvantage of static budgets is:
    A) the difficulty in developing such budgets due to the high cost of gathering the necessary information.
    B) the cost behavior pattern of manufacturing overhead, which is primarily fixed.
    C) that the variances between actual and budget on a static budget result from comparing actual costs at one level of activity to budgeted costs at a different level of activity.
    D) their length and complexity.

    Answer: C Level: Medium LO: 1

18. Comparing actual results to a budget based on actual activity for the period is possible with the use of a:
    A) monthly budget.
    B) master budget.
    C) flexible budget.
    D) rolling budget.

    Answer: C Level: Easy LO: 1

19. A static budget is:
    A) a budget for a single level of activity.
    B) a budget that ignores inflation.
    C) used only for fixed costs.
    D) used when the mix of products does not change.

    Answer: A Level: Easy LO: 1

20. Last year, a department's standard costing system reported an unfavorable variable overhead spending variance and an unfavorable volume variance. The denominator activity level selected for allocating overhead to the product was based on 80% of capacity. If 100% of capacity had been selected instead as the denominator level, how would the reported unfavorable spending and volume variances be affected?

	Spending variance	*Volume variance*
A)	Increased	Unchanged
B)	Increased	Increased
C)	Unchanged	Increased
D)	Unchanged	Unchanged

    Answer: C Level: Hard LO: 3,5 Source: CPA, adapted

21. The overhead spending variance:
    A) measures the variance in amount spent for fixed overhead items.
    B) includes elements of waste or excessive usage as well as elements of price variance.
    C) is generally considered to be the least useful of all overhead variances.
    D) measures the difference between denominator activity and standard hours allowed.

    Answer: B Level: Easy LO: 3

22. If the price a company paid for overhead items, such as utilities, decreased during the year, the company would probably report a(n):
    A) favorable efficiency variance.
    B) favorable spending variance.
    C) unfavorable efficiency variance.
    D) unfavorable spending variance.

    Answer: B Level: Medium LO: 3

23. Variable overhead is applied on the basis of standard direct labor-hours. If the direct labor efficiency variance is unfavorable, the variable overhead efficiency variance will be:
    A) favorable.
    B) unfavorable.
    C) zero.
    D) indeterminable since it is not related to the labor efficiency variance.

    Answer: B Level: Medium LO: 4 Source: CMA, adapted

24. Alex Company has a large underapplied overhead balance in the manufacturing overhead account. This could be explained by:
    A) an unfavorable volume variance, assuming all other variances are zero.
    B) a favorable volume variance, assuming all other variances are zero.
    C) standard hours allowed for the period's output being greater than denominator hours for the period.
    D) none of these.

    Answer: A Level: Hard LO: 5,6

25. In a standard cost system, overhead is applied to production on the basis of:
    A) the denominator hours chosen for the period.
    B) the actual hours required to complete the output of the period.
    C) the standard hours allowed to complete the output of the period.
    D) none of these.

    Answer: C Level: Medium LO: 5

26. The fixed overhead budget variance is measured by:
    A) the difference between budgeted fixed overhead cost and actual fixed overhead cost.
    B) the difference between actual fixed overhead cost and applied fixed overhead cost.
    C) the difference between budgeted fixed overhead cost and applied fixed overhead cost.
    D) none of these.

    Answer: A Level: Medium LO: 6

27. The Santos Company erred in selecting a denominator level of activity and chose a much lower level than was realistic. This error would most likely result in a large:
A) favorable variable overhead efficiency variance.
B) favorable fixed overhead budget variance.
C) favorable fixed overhead volume variance.
D) unfavorable fixed overhead budget variance.

Answer: C Level: Medium LO: 6

28. A fixed overhead volume variance based on standard direct labor-hours measures:
A) deviation from standard direct labor hour capacity.
B) deviation from the denominator level of direct labor hours.
C) fixed overhead efficiency.
D) fixed overhead spending.

Answer: B Level: Medium LO: 6 Source: CMA, adapted

29. Papenfuss Family Inn is a bed and breakfast establishment in a converted 100-year-old mansion. The Inn's guests appreciate its gourmet breakfasts and individually decorated rooms. The Inn's overhead budget for the most recent month appears below:

Activity level	86 guests
Variable overhead costs:	
Supplies	$ 86.00
Laundry	507.40
Fixed overhead costs:	
Utilities	340.00
Salaries and wages	4,790.00
Depreciation	2,620.00
Total overhead cost	$8,343.40

The Inn's variable overhead costs are driven by the number of guests.

What would be the total budgeted overhead cost for a month if the activity level is 76 guests? Assume that the activity levels of 86 guests and 76 guests are within the same relevant range.
A) $52,848.40
B) $8,343.40
C) $8,274.40
D) $7,373.24

Answer: C Level: Easy LO: 1

30. Hatzenbuhler Manufacturing Corporation has prepared the following overhead budget for next month.

Activity level	6,800	machine-hours
Variable overhead costs:		
Supplies	$ 22,440	
Indirect labor	55,760	
Fixed overhead costs:		
Supervision	19,300	
Utilities	5,700	
Depreciation	7,400	
Total overhead cost	$110,600	

The company's variable overhead costs are driven by machine-hours.

What would be the total budgeted overhead cost for next month if the activity level is 6,600 machine-hours rather than 6,800 machine-hours? Assume that the activity levels of 6,800 machine-hours and 6,600 machine-hours are within the same relevant range.
A) $107,824.00
B) $110,600.00
C) $108,300.00
D) $107,347.06

Answer: C Level: Easy LO: 1

31. Mcgahen Medical Clinic measures its activity in terms of patient-visits. Last month, the budgeted level of activity was 1,080 patient-visits and the actual level of activity was 990 patient-visits. The clinic's director budgets for variable overhead costs of $3.30 per patient-visit and fixed overhead costs of $10,600 per month. The actual variable overhead cost last month was $3,380 and the actual fixed overhead cost was $8,780. In the clinic's flexible budget performance report for last month, what would have been the variance for the total overhead cost?
A) $113 U
B) $297 F
C) $1,707 F
D) $2,004 F

Answer: C Level: Medium LO: 2

32. Sesareo Tile Installation Corporation measures its activity in terms of square feet of tile installed. Last month, the budgeted level of activity was 1,130 square feet and the actual level of activity was 1,180 square feet. The company's owner budgets for supply costs, a variable overhead cost, at $2.60 per square foot. The actual supply cost last month was $2,130. In the company's flexible budget performance report for last month, what would have been the variance for supply costs?
A) $808 F
B) $938 F
C) $90 U
D) $130 U

Answer: B Level: Easy LO: 2

33. Eng Natural Dying Corporation measures its activity in terms of skeins of yarn dyed. Last month, the budgeted level of activity was 16,800 skeins and the actual level of activity was 16,600 skeins. The company's owner budgets for dye costs, a variable overhead cost, at $0.44 per skein. The actual dye cost last month was $7,690. In the company's flexible budget performance report for last month, what would have been the variance for dye costs?
A) $298 U
B) $93 F
C) $88 F
D) $386 U

Answer: D Level: Easy LO: 2

34. Mcneeley Footwear Corporation's flexible budget cost formula for supplies, a variable overhead cost, is $2.94 per unit of output. The company's flexible budget performance report for last month showed a $4,998 favorable variance for supplies. During that month, 11,900 units were produced. Budgeted activity for the month had been 12,300 units. The actual costs incurred for indirect materials must have been closest to:
A) $2.94
B) $2.03
C) $2.10
D) $2.52

Answer: D Level: Hard LO: 2

35. Goy Corporation's flexible budget performance report for last month shows that actual indirect materials cost, a variable overhead cost, was $28,194 and that the variance for indirect materials cost was $1,887 unfavorable. During that month, the company worked 11,100 machine-hours. Budgeted activity for the month had been 11,200 machine-hours. The cost formula per machine-hour for indirect materials cost must have been closest to:
A) $2.69
B) $2.71
C) $2.35
D) $2.37

Answer: D Level: Hard LO: 2

36. At Cady Company, maintenance is a variable cost that varies directly with machine-hours. The performance report for June showed that actual maintenance costs totaled $9,600 and that the associated spending variance was $400 unfavorable. If 8,000 machine-hours were actually worked during June, the budgeted maintenance cost per machine-hour was:
A) $1.30
B) $1.25
C) $1.20
D) $1.15

Answer: D Level: Hard LO: 3

37. Suski Corporation has a standard cost system in which it applies manufacturing overhead to products on the basis of standard machine-hours (MHs). The company has provided the following data for the most recent month:

Budgeted level of activity.....	7,400	MHs
Actual level of activity	7,500	MHs
Cost formula for variable overhead cost	$5.90	per MH
Budgeted fixed overhead cost	$60,000	
Actual total variable overhead.....	$42,750	
Actual total fixed overhead	$61,000	

What was the variable overhead spending variance for the month?
A) $1,500 favorable
B) $590 unfavorable
C) $910 favorable
D) $1,000 unfavorable

Answer: A Level: Medium LO: 3

38. Masek Corporation has a standard cost system in which it applies manufacturing overhead to products on the basis of standard machine-hours (MHs). The company has provided the following data for the most recent month:

Budgeted level of activity	2,000	MHs
Actual level of activity	2,400	MHs
Cost formula for variable manufacturing overhead cost	$5.90	per MH
Budgeted fixed manufacturing overhead cost	$50,000	
Actual total variable manufacturing overhead	$14,880	
Actual total fixed manufacturing overhead	$49,000	

What was the fixed overhead budget variance for the month?
A) $2,360 unfavorable
B) $1,000 unfavorable
C) $2,360 favorable
D) $1,000 favorable

Answer: D Level: Medium LO: 3

39. Omary Corporation has a standard cost system in which it applies manufacturing overhead to products on the basis of standard machine-hours (MHs). The company has provided the following data for the most recent month:

Budgeted level of activity	3,900	MHs
Actual level of activity	4,100	MHs
Cost formula for variable manufacturing overhead cost	$7.60	per MH
Budgeted fixed manufacturing overhead cost	$50,000	
Actual total variable manufacturing overhead	$31,980	
Actual total fixed manufacturing overhead	$54,000	

What was the total of the variable overhead spending and fixed overhead budget variances for the month?
A) $1,520 unfavorable
B) $3,180 favorable
C) $4,820 unfavorable
D) $6,340 unfavorable

Answer: C Level: Medium LO: 3

40. Coblentz Fabrication Corporation has a standard cost system in which it applies manufacturing overhead to products on the basis of standard machine-hours (MHs). The company's cost formula for variable manufacturing overhead is $6.20 per MH. The company had budgeted its fixed manufacturing overhead cost at $40,000 for the month. During the month, the actual total variable manufacturing overhead was $48,970 and the actual total fixed manufacturing overhead was $43,000. The actual level of activity for the period was 8,300 MHs. What was the total of the variable overhead spending and fixed overhead budget variances for the month?
A) $2,490 favorable
B) $510 favorable
C) $510 unfavorable
D) $2,490 unfavorable

Answer: C Level: Easy LO: 3

41. Sholette Manufacturing Corporation has a standard cost system in which it applies manufacturing overhead to products on the basis of standard machine-hours (MHs). The company's cost formula for variable manufacturing overhead is $5.00 per MH. During the month, the actual total variable manufacturing overhead was $22,540 and the actual level of activity for the period was 4,600 MHs. What was the variable overhead spending variance for the month?
A) $92 favorable
B) $92 unfavorable
C) $460 unfavorable
D) $460 favorable

Answer: D Level: Easy LO: 3

42. Tropiano Electronics Corporation has a standard cost system in which it applies manufacturing overhead to products on the basis of standard machine-hours (MHs). The company had budgeted its fixed manufacturing overhead cost at $62,100 for the month and its level of activity at 3,200 MHs. The actual total fixed manufacturing overhead was $61,600 for the month and the actual level of activity was 3,000 MHs. What was the fixed overhead budget variance for the month to the nearest dollar?
A) $3,381 unfavorable
B) $500 favorable
C) $500 unfavorable
D) $3,381 favorable

Answer: B Level: Medium LO: 3

43. Merle Corporation applies manufacturing overhead to products on the basis of standard machine-hours. For the most recent month, the company based its budget on 4,000 machine-hours. Budgeted and actual overhead costs for the month appear below:

	Original Budget Based on 4,000 Machine-Hours	*Actual Costs*
Variable overhead costs:		
Supplies	$14,000	$13,150
Indirect labor	27,200	24,390
Fixed overhead costs:		
Supervision	19,900	19,540
Utilities	4,700	4,360
Factory depreciation	8,800	8,620
Total overhead cost	$74,600	$70,060

The company actually worked 3,690 machine-hours during the month. The standard hours allowed for the actual output were 3,620 machine-hours for the month. What was the overall variable overhead efficiency variance for the month?

A) $721 unfavorable
B) $467 favorable
C) $254 unfavorable
D) $880 favorable

Answer: A Level: Hard LO: 4

44. Schley Corporation applies manufacturing overhead to products on the basis of standard machine-hours. Budgeted and actual overhead costs for the most recent month appear below:

	Original Budget	*Actual Costs*
Variable overhead costs:		
Supplies	$ 3,840	$ 4,730
Indirect labor	22,400	25,260
Total variable overhead cost	$26,240	$29,990

The original budget was based on 3,200 machine-hours. The company actually worked 3,510 machine-hours during the month and the standard hours allowed for the actual output were 3,660 machine-hours. What was the overall variable overhead efficiency variance for the month?

A) $550 favorable
B) $1,208 unfavorable
C) $22 favorable
D) $1,230 favorable

Answer: D Level: Medium LO: 4

45. Machain Corporation applies manufacturing overhead to products on the basis of standard machine-hours. The company's cost formula for variable overhead cost is $2.90 per machine-hour. The actual variable overhead cost for the month was $15,270. The original budget for the month was based on 5,000 machine-hours. The company actually worked 5,090 machine-hours during the month. The standard hours allowed for the actual output of the month totaled 5,200 machine-hours. What was the variable overhead efficiency variance for the month?

A) $580 unfavorable
B) $190 unfavorable
C) $509 unfavorable
D) $319 favorable

Answer: D Level: Easy LO: 4

46. Pizzi, Inc. had the following fixed overhead variances last year:

Fixed overhead budget variance.....	$30,000	unfavorable
Fixed overhead volume variance.....	$6,000	favorable

Pizzi uses machine-hours as an activity base for overhead and used 48,000 machine-hours as the denominator activity level for the year. Total actual fixed overhead was $150,000. The actual number of machine-hours incurred was 50,000. What were Pizzi's standard hours allowed for actual output?

A) 40,000
B) 42,000
C) 50,400
D) 52,500

Answer: C Level: Hard LO: 5,6

47. Ferro Enterprises, Inc., uses a standard cost system in which it applies manufacturing overhead to units of product on the basis of standard direct labor-hours. During the month of September, the company applied $52,000 in fixed manufacturing overhead cost to units of product. At the end of the month, manufacturing overhead was overapplied by $3,000. If there was no volume variance in September, then the budgeted fixed manufacturing overhead cost for the month was:

A) $49,000
B) $52,000
C) $55,000
D) $58,000

Answer: B Level: Hard LO: 5,6

48. Hall Company's standards call for 750 direct labor-hours to produce 500 units. During May 400 units were produced. The company worked 650 direct labor-hours. The standard hours allowed for May production would be:

A) 750 hours
B) 650 hours
C) 600 hours
D) 100 hours

Answer: C Level: Easy LO: 5

49. Dexter Company uses a standard cost system and applies manufacturing overhead cost to units of product on the basis of standard direct labor-hours (DLHs). Information on Dexter Company's manufacturing overhead costs for last period is given below:

Actual hours worked	40,000	DLHs
Standard hours allowed for actual production	38,000	DLHs
Denominator hours used in computing the predetermined overhead rate	35,000	DLHs
Predetermined overhead rate	$4	per DLH
Actual overhead costs incurred	$150,000	

Given these data, the under- or overapplied overhead cost for the period would be:
A) $10,000 overapplied
B) $2,000 overapplied
C) $10,000 underapplied
D) $8,000 underapplied

Answer: B Level: Medium LO: 5

50. At the end of April, the Manufacturing Overhead account of Askey Company showed a debit balance of $6,000 after overhead had been applied for the month. If the actual total manufacturing overhead cost incurred in April was $108,600, and if 8,550 units were produced in April, then the total (combined) rate for applying manufacturing overhead cost per unit is:
A) $13.40
B) $13.00
C) $12.80
D) $12.00

Answer: D Level: Hard LO: 5

51. Semaan Corporation applies manufacturing overhead to products on the basis of standard machine-hours. Budgeted and actual overhead costs for the month appear below:

	Original Budget	*Actual Costs*
Variable overhead costs:		
Supplies	$11,340	$12,850
Indirect labor	15,120	17,080
Fixed overhead costs:		
Supervision	14,900	14,640
Utilities	5,800	6,010
Factory depreciation	9,700	9,410
Total overhead cost	$56,860	$59,990

The company based its original budget on 2,700 machine-hours. The company actually worked 2,960 machine-hours during the month. The standard hours allowed for the actual output of the month totaled 3,030 machine-hours. What was the overall fixed overhead budget variance for the month?

A) $3,130 unfavorable
B) $340 unfavorable
C) $340 favorable
D) $3,130 favorable

Answer: C Level: Medium LO: 6

52. Acuff Corporation applies manufacturing overhead to products on the basis of standard machine-hours. Budgeted and actual overhead costs for the most recent month appear below:

	Original Budget	*Actual Costs*
Fixed overhead costs:		
Supervision	$15,600	$15,950
Utilities	5,000	5,070
Factory depreciation	6,800	6,700
Total fixed overhead cost	$27,400	$27,720

The company based its original budget on 6,200 machine-hours. The company actually worked 6,560 machine-hours during the month. The standard hours allowed for the actual output of the month totaled 6,420 machine-hours. What was the overall fixed overhead budget variance for the month?

A) $320 favorable
B) $320 unfavorable
C) $972 favorable
D) $972 unfavorable

Answer: B Level: Medium LO: 6

53. Reidenbach Corporation applies manufacturing overhead to products on the basis of standard machine-hours. The budgeted fixed overhead cost for the most recent month was $17,100 and the actual fixed overhead cost for the month was $17,450. The company based its original budget on 4,500 machine-hours. The standard hours allowed for the actual output of the month totaled 4,810 machine-hours. What was the overall fixed overhead budget variance for the month?

A) $1,178 unfavorable
B) $350 unfavorable
C) $350 favorable
D) $1,178 favorable

Answer: B Level: Easy LO: 6

54. Steinhagen Corporation applies manufacturing overhead to products on the basis of standard machine-hours. Budgeted and actual overhead costs for the most recent month appear below:

	Original Budget	*Actual Costs*
Variable overhead costs:		
Supplies	$ 5,460	$ 6,570
Indirect labor	3,640	4,410
Fixed overhead costs:		
Supervision	9,100	9,450
Utilities	5,980	5,850
Factory depreciation	22,100	22,520
Total overhead cost	$46,280	$48,800

The company based its original budget on 2,600 machine-hours. The company actually worked 2,790 machine-hours during the month. The standard hours allowed for the actual output of the month totaled 2,960 machine-hours. What was the overall fixed overhead volume variance for the month?

A) $5,148 favorable
B) $5,148 unfavorable
C) $2,717 favorable
D) $2,717 unfavorable

Answer: A Level: Hard LO: 6

55. Denby Corporation applies manufacturing overhead to products on the basis of standard machine-hours. Budgeted and actual fixed overhead costs for the most recent month appear below:

	Original Budget	*Actual Costs*
Fixed overhead costs:		
Supervision	$12,800	$13,190
Utilities	8,320	8,260
Factory depreciation	46,720	46,540
Total fixed overhead cost	$67,840	$67,990

The company based its original budget on 6,400 machine-hours. The company actually worked 6,710 machine-hours during the month. The standard hours allowed for the actual output of the month totaled 6,540 machine-hours. What was the overall fixed overhead volume variance for the month?

A) $3,286 favorable
B) $1,484 unfavorable
C) $3,286 unfavorable
D) $1,484 favorable

Answer: D Level: Medium LO: 6

56. Diseth Corporation applies manufacturing overhead to products on the basis of standard machine-hours. The company bases its predetermined overhead rate on 5,300 machine-hours. The company's total budgeted fixed manufacturing overhead is $12,720. In the most recent month, the total actual fixed manufacturing overhead was $12,370. The company actually worked 5,350 machine-hours during the month. The standard hours allowed for the actual output of the month totaled 5,540 machine-hours. What was the overall fixed overhead volume variance for the month?

A) $350 favorable
B) $120 favorable
C) $120 unfavorable
D) $576 favorable

Answer: D Level: Easy LO: 6

57. Bruley Corporation applies manufacturing overhead to products on the basis of standard machine-hours. The company's predetermined overhead rate for fixed manufacturing overhead is $3.30 per machine-hour and the denominator level of activity is 3,500 machine-hours. In the most recent month, the total actual fixed manufacturing overhead was $11,570 and the company actually worked 3,430 machine-hours during the month. The standard hours allowed for the actual output of the month totaled 3,450 machine-hours. What was the overall fixed overhead volume variance for the month?
A) $66 favorable
B) $231 favorable
C) $231 unfavorable
D) $165 unfavorable

Answer: D Level: Easy LO: 6

Use the following to answer questions 58-61:

The Steimer Company bases its flexible budget for manufacturing overhead on direct labor-hours (DLH). The company uses the following information in its flexible budget:

Supplies	$0.45 per DLH
Utilities	$9,000 per month plus $0.30 per DLH
Insurance	$3,000 per month
Indirect labor	$15,000 per month plus $0.25 per DLH
Depreciation	$18,000 per month

The company uses standard costing and uses 50,000 DLHs as its denominator activity.

58. The variable manufacturing overhead rate per direct labor-hour is:
A) $0.45
B) $0.55
C) $1.00
D) $1.25

Answer: C Level: Easy LO: 1

59. The fixed manufacturing overhead rate per direct labor-hour is:
A) $0.55
B) $0.90
C) $1.00
D) $1.30

Answer: B Level: Easy LO: 1

60. At an activity level of 40,000 direct labor-hours, the total budgeted manufacturing overhead for a month would be:
    A) $45,000
    B) $60,000
    C) $67,000
    D) $85,000

    Answer: D Level: Easy LO: 1

61. Suppose that 48,000 actual direct labor-hours are worked during one month. If 45,000 standard direct labor-hours are allowed for the month's output, then the variable overhead efficiency variance for supplies for the month would be:
    A) $400 U
    B) $400 F
    C) $1,350 U
    D) $1,350 F

    Answer: C Level: Medium LO: 4

Use the following to answer questions 62-64:

The Minard Company uses the following condensed flexible budget for manufacturing overhead:

Variable overhead	$5.80 per direct labor-hour
Fixed overhead.....	$420,000 per year

62. At an activity level of 600,000 direct labor-hours per year, the budgeted manufacturing overhead cost would be:
    A) $3,840,000
    B) $3,900,000
    C) $1,020,000
    D) $420,000

    Answer: B Level: Easy LO: 1

63. At an activity level of 400,000 direct labor-hours, the budgeted variable manufacturing overhead cost would be:
    A) $2,740,000
    B) $2,320,000
    C) $820,000
    D) $420,000

    Answer: B Level: Easy LO: 1

64. At a denominator activity level of 700,000 direct labor-hours, the predetermined overhead rate (per direct labor-hour) would be:
    A) $7.00
    B) $6.40
    C) $6.00
    D) $5.80

    Answer: B Level: Easy LO: 5

Use the following to answer questions 65-70:

A manufacturing company has a standard costing system based on standard machine-hours (MHs) as the measure of activity. Data from the company's flexible budget for manufacturing overhead are given below:

Denominator level of activity	6,300	MHs
Overhead costs at the denominator activity level:		
Variable overhead cost	$34,020	
Fixed overhead cost	$120,960	

The following data pertain to operations for the most recent period:

Actual hours	6,800	MHs
Standard hours allowed for the actual output	6,384	MHs
Actual total variable overhead cost	$38,080	
Actual total fixed overhead cost	$122,710	

65. What is the predetermined overhead rate to the nearest cent?
    A) $22.79
    B) $24.60
    C) $25.52
    D) $23.65

    Answer: B Level: Medium LO: 5

66. How much overhead was applied to products during the period to the nearest dollar?
    A) $154,980
    B) $157,046
    C) $167,280
    D) $160,790

    Answer: B Level: Medium LO: 5

67. What was the variable overhead spending variance for the period to the nearest dollar?
A) $4,060 F
B) $4,060 U
C) $1,360 U
D) $1,360 F

Answer: C Level: Medium LO: 3

68. What was the variable overhead efficiency variance for the period to the nearest dollar?
A) $2,330 U
B) $2,246 U
C) $4,060 U
D) $1,277 F

Answer: B Level: Medium LO: 4

69. What was the fixed overhead budget variance for the period to the nearest dollar?
A) $137 F
B) $1,750 U
C) $7,850 U
D) $7,507 F

Answer: B Level: Medium LO: 6

70. What was the fixed overhead volume variance for the period to the nearest dollar?
A) $9,600 F
B) $7,987 U
C) $1,613 F
D) $1,615 U

Answer: C Level: Medium LO: 6

Use the following to answer questions 71-74:

Pohl Company uses a standard cost system in which manufacturing overhead is applied to units of product on the basis of standard machine-hours. For June, the company's manufacturing overhead flexible budget showed the following total budgeted costs at a denominator activity level of 20,000 machine-hours:

Variable overhead costs (total):	
Maintenance	$16,000
Utilities	$10,000
Fixed overhead costs (total):	
Supervision	$20,500
Depreciation	$9,500

During June, 17,000 machine-hours were used to complete 13,000 units of product, and the following actual total overhead costs were incurred:

Variable overhead costs (total):	
Maintenance	$14,620
Utilities	$10,710
Fixed overhead costs (total):	
Supervision	$19,320
Depreciation	$9,500

At standard, each unit of finished product requires 1.4 hours of machine time.

71. The variable overhead spending variance for maintenance cost for June was
    A) $1,020 F
    B) $1,020 U
    C) $3,230 F
    D) $3,230 U

    Answer: B Level: Medium LO: 3

72. The variable overhead efficiency variance for utilities cost for June was
    A) $400 F
    B) $400 U
    C) $600 F
    D) $600 U

    Answer: C Level: Medium LO: 4

73. The total predetermined overhead rate per machine-hour for June was:
    A) $2.57
    B) $1.30
    C) $2.80
    D) $3.15

    Answer: C Level: Medium LO: 5

74. The fixed overhead budget variance (in total) for June was:
    A) $3,230 F
    B) $3,230 U
    C) $1,180 F
    D) $1,180 U

    Answer: C Level: Medium LO: 6

Use the following to answer questions 75-78:

Standard Company has developed standard manufacturing overhead costs based on a capacity of 180,000 direct labor-hours (DLHs) as follows:

Standard overhead costs per unit:

Variable portion	2 DLHs @ $3 per DLH = $6
Fixed portion	2 DLHs @ $5 per DLH = $10

The following data pertain to operations in April:

Actual output	80,000	units
Actual direct labor cost	$644,000	
Actual direct labor-hours worked.....	165,000	DLHs
Variable overhead cost incurred.....	$518,000	
Fixed overhead cost incurred	$860,000	

75. The variable overhead spending variance for April was:
    A) $15,000 unfavorable
    B) $23,000 unfavorable
    C) $38,000 favorable
    D) $38,000 unfavorable

    Answer: B Level: Medium LO: 3 Source: CMA, adapted

76. The variable overhead efficiency variance for April was:
    A) $15,000 unfavorable
    B) $23,000 unfavorable
    C) $38,000 favorable
    D) $38,000 unfavorable

    Answer: A Level: Medium LO: 4 Source: CMA, adapted

77. The fixed overhead budget variance for April was:
    A) $40,000 unfavorable
    B) $40,000 favorable
    C) $60,000 favorable
    D) $60,000 unfavorable

    Answer: B Level: Medium LO: 6 Source: CMA, adapted

78. The fixed overhead volume variance for April was:
    A) $60,000 unfavorable
    B) $60,000 favorable
    C) $100,000 favorable
    D) $100,000 unfavorable

    Answer: D Level: Medium LO: 6 Source: CMA, adapted

Use the following to answer questions 79-81:

Sulema, Inc. repairs and refinishes antique furniture. Manufacturing overhead at Sulema is applied to production on the basis of standard direct labor-hours.

79. Which overhead variance(s) at Sulema would be favorably affected if the actual direct labor-hours incurred are less than the standard direct labor-hours allowed for output?
    A) variable overhead spending variance
    B) variable overhead efficiency variance
    C) fixed overhead budget variance
    D) fixed overhead volume variance

    Answer: B Level: Medium LO: 3,4,6

80. Which overhead variance(s) at Sulema would be unfavorably affected if the cost of solvents used to strip the old paint and varnish from the furniture unexpectedly doubles in price?
    A) variable overhead spending variance
    B) variable overhead efficiency variance
    C) fixed overhead budget variance
    D) fixed overhead volume variance

    Answer: A Level: Medium LO: 3,4,6

81. Which overhead variance(s) at Sulema would be unfavorably affected if a significant amount of glue is being wasted by inexperienced direct labor workers?
    A) variable overhead spending variance
    B) variable overhead efficiency variance
    C) fixed overhead budget variance
    D) fixed overhead volume variance

    Answer: A Level: Medium LO: 3,4,6

Use the following to answer questions 82-83:

A manufacturing company that has only one product has established the following standards for its variable manufacturing overhead. The company uses direct labor-hours (DLHs) as its measure of activity.

Standard hours per unit of output	3.9	DLHs
Standard variable overhead rate	$16.55	per DLH

The following data pertain to operations for the last month:

Actual direct labor-hours	7,700	DLHs
Actual total variable overhead cost	$127,050	
Actual output	1,700	units

82. What is the variable overhead spending variance for the month?
    A) $385 F
    B) $17,324 U
    C) $385 U
    D) $17,324 F

    Answer: A Level: Medium LO: 3

83. What is the variable overhead efficiency variance for the month?
    A) $17,655 F
    B) $17,655 U
    C) $17,709 U
    D) $332 U

    Answer: C Level: Medium LO: 4

Use the following to answer questions 84-86:

Cuda Manufacturing Company uses a standard cost system with machine-hours (MHs) as the activity base for overhead. The following information relates to Cuda's operations last year:

Denominator activity level in machine-hours	50,000	
Standard machine-hours allowed for actual output	55,000	
Actual number of machine-hours incurred	52,000	
Predetermined overhead rate for variable overhead	$7.00	per MH
Predetermined overhead rate for fixed overhead	$12.00	per MH
Total variable overhead incurred	$370,000	
Total fixed overhead incurred during	$615,000	

84. What was Cuda's variable overhead spending variance?
    A) $6,000 unfavorable
    B) $15,000 favorable
    C) $20,000 unfavorable
    D) $21,000 favorable

    Answer: A Level: Medium LO: 3

85. What was Cuda's fixed overhead budget variance?
    A) $9,000 favorable
    B) $15,000 unfavorable
    C) $45,000 favorable
    D) $45,000 unfavorable

    Answer: B Level: Medium LO: 4

86. What total amount of manufacturing overhead cost (variable and fixed) did Cuda apply to production?
    A) $950,000
    B) $985,000
    C) $988,000
    D) $1,045,000

    Answer: D Level: Medium LO: 5

Use the following to answer questions 87-89:

Vette Tie Corporation has developed the following manufacturing overhead standards to use in applying overhead to the production of its hand-painted silk ties. Manufacturing overhead at Vette is applied to production on the basis of standard direct labor-hours (DLHs).

Standard Cost Per Tie

Variable overhead (1.1 DLHs @ $14.00 per DLH).....	$15.40
Fixed overhead (1.1 DLHs @ $8.00 per DLH).....	$8.80

The above standards were based on an expected annual volume of 60,000 ties. The actual results for last year were as follows:

Number of ties produced.....	58,000
Direct labor-hours worked	64,000
Variable overhead cost.....	$880,000
Fixed overhead cost.....	$525,000

87. What was Vette's variable overhead spending variance?
    A) $2,800 unfavorable
    B) $13,200 favorable
    C) $16,000 favorable
    D) $68,000 unfavorable

    Answer: C Level: Medium LO: 3

88. What was Vette's fixed overhead budget variance?
    A) $1,600 unfavorable
    B) $3,000 favorable
    C) $13,000 unfavorable
    D) $17,600 unfavorable

    Answer: B Level: Medium LO: 6

89. What total amount of manufacturing overhead cost (variable and fixed) did Vette apply to the 58,000 ties produced during the year?
    A) $1,276,000
    B) $1,403,600
    C) $1,421,200
    D) $1,452,000

    Answer: B Level: Medium LO: 5

Use the following to answer questions 90-92:

Tantanka Manufacturing Company uses a standard cost system with machine-hours as the activity base for overhead. The following information relates to production for last year:

	Variable	*Fixed*
Total budgeted overhead (at denominator level of activity)	$432,000	$684,000
Total applied overhead	$410,400	$649,800
Total actual overhead	$456,000	$655,500

The standard machine-hours allowed for actual output during the year were 7,600. The actual machine-hours incurred were 7,500.

90. What did Tantanka use as a predetermined overhead rate for fixed overhead?
    A) $85.50 per machine-hour
    B) $86.64 per machine-hour
    C) $87.40 per machine-hour
    D) $90.00 per machine-hour

    Answer: A Level: Hard LO: 5

91. What was Tantanka's fixed overhead volume variance?
    A) $5,700 unfavorable
    B) $14,440 unfavorable
    C) $28,500 favorable
    D) $34,200 unfavorable

    Answer: D Level: Hard LO: 6

92. What was Tantanka's variable overhead efficiency variance?
    A) $5,400 favorable
    B) $5,472 unfavorable
    C) $21,600 unfavorable
    D) $51,000 unfavorable

    Answer: A Level: Hard LO: 4

Use the following to answer questions 93-96:

Norman Enterprises has a standard cost system in which manufacturing overhead is applied to units of product on the basis of standard direct labor-hours (DLHs). The company has provided the following data concerning its fixed manufacturing overhead costs for last year:

Total actual fixed overhead cost incurred	$42,000	
Fixed overhead cost overapplied.....	$6,000	
Number of units produced.....	12,500	
Volume variance, unfavorable	$3,600	
Standard labor-hours per unit.....	1.6	DLHs

93. The fixed portion of the predetermined overhead rate last year was:
    A) $1.80 per DLH
    B) $2.40 per DLH
    C) $2.88 per DLH
    D) $3.84 per DLH

    Answer: B Level: Hard LO: 5

94. The budgeted fixed overhead cost last year was:
    A) $41,000
    B) $42,000
    C) $44,400
    D) $51,600

    Answer: D Level: Hard LO: 5

95. The budget variance for fixed overhead last year was:
    A) $9,600 F
    B) $9,600 U
    C) $2,400 F
    D) $2,400 U

    Answer: A Level: Hard LO: 6

96. The denominator activity level in direct labor-hours last year was:
    A) 20,000
    B) 21,500
    C) 22,000
    D) 23,500

    Answer: B Level: Hard LO: 5

Use the following to answer questions 97-98:

The Chuba Company uses a standard cost system in which manufacturing overhead is applied to units of product on the basis of standard direct labor-hours (DLHs). During December, the company actually used 7,200 direct labor-hours and made 1,900 units of finished product. The standard cost card for one unit of product includes the following data concerning manufacturing overhead:

Variable overhead:	4 DLHs @ $5.25 per DLH
Fixed overhead:	4 DLHs @ $2.00 per DLH

For December, the company incurred $16,550 in fixed overhead costs and recorded an $800 unfavorable volume variance.

97. The budgeted fixed overhead cost was:
    A) $15,200
    B) $16,000
    C) $16,550
    D) $13,700
    E) $14,400

    Answer: B Level: Hard LO: 5,6

98. The denominator activity level in direct labor-hours used by Chuba in setting the predetermined overhead rate was:
    A) 7,600 hours
    B) 7,800 hours
    C) 8,000 hours
    D) 7,200 hours

    Answer: C Level: Hard LO: 5,6

Use the following to answer questions 99-102:

Zotta Enterprises uses standard costing and applies manufacturing overhead cost to products on the basis of standard direct labor-hours (DLHs). Budgeted and actual data relating to manufacturing overhead for last year appear below:

Actual fixed overhead cost.....	$38,900	
Denominator activity.....	20,000	DLHs
Standard hours allowed for one unit	1.2	DLHs
Units produced	17,000	units
Fixed overhead budget variance.....	$1,300	Unfavorable

99. The budgeted fixed manufacturing overhead cost was:
A) $24,000
B) $38,900
C) $40,200
D) $37,600

Answer: D Level: Medium LO: 5,6

100. The standard direct labor-hours allowed for the output was:
A) 14,167 hrs
B) 19,600 hrs
C) 20,000 hrs
D) 20,400 hrs

Answer: D Level: Medium LO: 5,6

101. The fixed manufacturing overhead cost applied to products was:
A) $31,960
B) $37,250
C) $38,352
D) $39,846

Answer: C Level: Medium LO: 5,6

102. The volume variance was:
A) $5,640 U
B) $5,640 F
C) $752 U
D) $752 F

Answer: D Level: Medium LO: 5,6

Use the following to answer questions 103-106:

A furniture manufacturer has a standard costing system based on direct labor-hours (DLHs) as the measure of activity. Data from the company's flexible budget for manufacturing overhead are given below:

Denominator level of activity	5,400	DLHs
Overhead costs at the denominator activity level:		
Variable overhead cost	$14,310	
Fixed overhead cost	$50,490	

The following data pertain to operations for the most recent period:

Actual hours	5,900	DLHs
Standard hours allowed for the actual output	5,700	DLHs
Actual total variable overhead cost	$16,225	
Actual total fixed overhead cost	$50,490	

103. What is the predetermined overhead rate to the nearest cent?
A) $12.35
B) $10.98
C) $12.00
D) $11.31

Answer: C Level: Medium LO: 5

104. How much overhead was applied to products during the period to the nearest dollar?
A) $64,800
B) $68,400
C) $66,715
D) $70,800

Answer: B Level: Medium LO: 5

105. What was the fixed overhead budget variance for the period to the nearest dollar?
A) $4,675 U
B) $2,805 U
C) $1,712 F
D) $0

Answer: D Level: Medium LO: 6

106. What was the fixed overhead volume variance for the period to the nearest dollar?
A) $2,805 F
B) $4,675 F
C) $1,870 U
D) $2,657 F

Answer: A Level: Medium LO: 6

Use the following to answer questions 107-110:

A manufacturer of playground equipment has a standard costing system based on direct labor-hours (DLHs) as the measure of activity. Data from the company's flexible budget for manufacturing overhead are given below:

Denominator level of activity.....	8,100	DLHs
Fixed overhead cost.....	$78,975	

The following data pertain to operations for the most recent period:

Actual hours	8,300	DLHs
Standard hours allowed for the actual output.....	8,229	DLHs
Actual total fixed overhead cost.....	$78,125	

107. What is the predetermined fixed overhead rate to the nearest cent?
A) $9.41
B) $9.65
C) $9.52
D) $9.75

Answer: D Level: Medium LO: 5

108. How much fixed overhead was applied to products during the period to the nearest dollar?
A) $80,233
B) $80,925
C) $78,975
D) $78,125

Answer: A Level: Medium LO: 5

109. What was the fixed overhead budget variance for the period to the nearest dollar?
A) $668 F
B) $850 F
C) $2,800 U
D) $2,108 U

Answer: B Level: Medium LO: 6

110. What was the fixed overhead volume variance for the period to the nearest dollar?
A) $1,258 F
B) $1,225 F
C) $1,950 F
D) $692 U

Answer: A Level: Medium LO: 6

Use the following to answer questions 111-112:

A manufacturer of industrial equipment has a standard costing system based on direct labor-hours (DLHs) as the measure of activity. Data from the company's flexible budget for manufacturing overhead are given below:

Denominator level of activity	900	DLHs
Overhead costs at the denominator activity level:		
Variable overhead cost	$7,740	
Fixed overhead cost	$10,755	

The following data pertain to operations for the most recent period:

Actual hours	1,000	DLHs
Standard hours allowed for the actual output	888	DLHs
Actual total variable overhead cost	$8,600	
Actual total fixed overhead cost	$11,755	

111. What is the predetermined overhead rate to the nearest cent?
A) $22.62
B) $18.50
C) $20.55
D) $20.36

Answer: C Level: Medium LO: 5

112. How much overhead was applied to products during the period to the nearest dollar?
A) $18,495
B) $18,248
C) $20,550
D) $20,355

Answer: B Level: Medium LO: 5

Use the following to answer questions 113-114:

Homer Company has a standard cost system in which manufacturing overhead is applied to units of product on the basis of standard machine-hours (MHs). The company has provided the following data concerning its manufacturing overhead costs for last year:

Actual machine-hours	840	MHs
Standard machine-hours allowed for the actual output	900	MHs
Denominator activity	1,000	MHs
Actual fixed overhead costs	$3,800	
Budgeted fixed overhead costs	$4,000	
Predetermined overhead rate ($1 variable + $4 fixed)	$5	per MH

113. The fixed overhead budget variance was:
A) $200 F
B) $400 U
C) $300 F
D) $240 U

Answer: A Level: Easy LO: 6

114. The volume variance was:
A) $200 F
B) $400 U
C) $300 F
D) $240 U

Answer: B Level: Medium LO: 6

Use the following to answer questions 115-116:

Difazzio Manufacturing Company uses a standard cost system with machine-hours as the activity base for overhead. Difazzio budgeted its fixed overhead costs at $728,000 for the year but ended up incurring only $691,600. The following data relate to machine-hours for the year:

Denominator activity level in machine-hours	2,600
Standard machine-hours allowed for actual output	2,800
Actual number of machine-hours incurred	2,500

115. What was Difazzio's fixed overhead budget variance?
A) $8,400 favorable
B) $9,408 favorable
C) $36,400 favorable
D) $41,600 unfavorable

Answer: C Level: Easy LO: 6

116. What was Difazzio's fixed overhead volume variance?
A) $9,408 favorable
B) $26,000 favorable
C) $56,000 favorable
D) $84,000 favorable

Answer: C Level: Medium LO: 6

Use the following to answer questions 117-118:

An outdoor barbecue grill manufacturer has a standard costing system based on standard machine-hours (MHs) as the measure of activity. Data from the company's flexible budget for manufacturing overhead are given below:

Denominator level of activity	8,900	MHs
Fixed overhead cost	$98,790	

The following data pertain to operations for the most recent period:

Actual hours	9,000	MHs
Standard hours allowed for the actual output	8,982	MHs
Actual total fixed overhead cost	$100,240	

117. What was the fixed overhead budget variance for the period to the nearest dollar?
A) $340 F
B) $1,450 U
C) $540 F
D) $200 F

Answer: B Level: Medium LO: 6

118. What was the fixed overhead volume variance for the period to the nearest dollar?
A) $1,110 F
B) $200 U
C) $910 F
D) $915 F

Answer: C Level: Medium LO: 6

Essay Questions

119. Lindon Company's flexible budget for variable manufacturing overhead is given below:

Overhead costs	*Cost Formula per DLH*	*6,000 DLHs*	*8,000 DLHs*	*10,000 DLHs*
Supplies	$0.20	$1,200	$1,600	$2,000
Indirect labor	0.50	3,000	4,000	5,000
Utilities	0.05	300	400	500
Total overhead cost	$0.75	$4,500	$6,000	$7,500

During a recent period, the company produced 2,500 units of product using 7,600 direct labor-hours (DLHs). The standard allows 3 direct labor-hours per unit. Actual variable overhead costs incurred were:

Supplies	$1,900
Indirect labor	3,040
Utilities	570
Total overhead cost	$5,510

The company had originally budgeted to produce 2,600 units during the period using 7,800 direct labor-hours.

Required:
Prepare a performance report for the period showing only the spending variances for each overhead cost category.

Level: Easy LO: 1,2

Answer:

Lindon Company
Performance Report

Budgeted DLHs	7,800
Actual DLHs	7,600
Standard DLHs	7,500*

Overhead Costs	*Cost Formula*	*Actual Cost 7,600 DLH*	*Budget Based on 7,600 DLH*	*Spending Variance*
Supplies	$0.20	$1,900	$1,520	$380 U
Indirect labor	0.50	3,040	3,800	760 F
Utilities	0.05	570	380	190 U
Total overhead cost	$0.75	$5,510	$5,700	$190 F

* 3 DLHs per unit × 2,500 units = 7,500 DLHs

120. The following overhead data are for a department in a large company.

	Actual Costs Incurred	*Static Budget*
Activity level (in units)	400	380
Variable costs:		
Indirect materials	$9,050	$8,132
Power	$2,540	$2,394
Fixed costs:		
Administration	$5,080	$5,100
Rent	$8,590	$8,600

Required:

Prepare a report that would be useful in assessing how well costs were controlled in this department.

Level: Easy LO: 1,2

Answer:

	Cost formula per unit of activity	*Actual costs incurred*	*Budget based on actual activity*	*Variance*
Variable costs:				
Indirect materials...	$21.40	$ 9,050	$ 8,560	$490 U
Power.....	6.30	2,540	2,520	20 U
Total variable cost	$27.70	11,590	11,080	510 U
Fixed costs:				
Administration.....		5,080	5,100	20 F
Rent		8,590	8,600	10 F
Total fixed cost.....		13,670	13,700	30 F
Total cost		$25,260	$24,780	$480 U

121. The following overhead data are for a department in a large company.

	Actual Costs Incurred	*Static Budget*
Activity level (in units).....	200	220
Variable costs:		
Supplies	$4,050	$4,906
Power.....	$1,690	$1,892
Fixed costs:		
Administration.....	$6,240	$6,200
Depreciation	$6,280	$6,200

Required:
Prepare a report that would be useful in assessing how well costs were controlled in this department.

Level: Easy LO: 1,2

Answer:

	Cost formula per unit of activity	*Actual costs incurred*	*Budget based on actual activity*	*Variance*
Variable costs:				
Supplies	$22.30	$ 4,050	$ 4,460	$410 F
Power	8.60	1,690	1,720	30 F
Total variable cost	$30.90	5,740	6,180	440 F
Fixed costs:				
Administration		6,240	6,200	40 U
Depreciation		6,280	6,200	80 U
Total fixed cost		12,520	12,400	120 U
Total cost		$18,260	$18,580	$320 F

122. Layt Clock Company has developed the following flexible budget for its overhead costs. Manufacturing overhead at Layt is applied to production on the basis of standard machine-hours:

	Machine Hours		
	21,600	*24,000*	*26,400*
Clocks produced	18,000	20,000	22,000
Variable overhead cost	$127,440	$141,600	$155,760
Fixed overhead cost	$171,072	$171,072	$171,072

Layt was expecting to produce 22,000 clocks last year. The actual results for the year were as follows:

Number of clocks produced	21,500
Machine-hours incurred	24,940
Variable overhead cost	$145,899
Fixed overhead cost	$170,540

Required:

Compute all four manufacturing overhead variances for Layt.

Level: Medium LO: 3,4,5,6

Answer:
Variable Overhead Spending Variance = (AH × AR) - (AH × SR)
= $145,899 - [($155,760/26,400) × 24,940] = $1,247 F
Variable Overhead Efficiency Variance = (AH × SR) - (SH × SR)
= [24,940 × ($155,760/26,400)] - [21,500 × (26,400/22,000) ×
($155,760/26,400)] = $5,074 F
Fixed Overhead Budget Variance =
Actual fixed overhead cost - Budgeted fixed overhead cost
= $170,540 - $171,072 = $532F
Fixed Overhead Volume Variance =
Fixed portion of the predetermined overhead rate × (Denominator hours – Standard hours allowed)
= $171,072 - [($171,072/26,400) × 21,500 × (26,400/22,000)] = $3,888 U

123. Parker Company uses a standard cost system in which manufacturing overhead is applied to units of product on the basis of standard direct labor-hours. The company's total budgeted variable and fixed manufacturing overhead costs at the denominator level of activity are $14,000 for variable overhead and $6,000 for fixed overhead. The predetermined overhead rate, including both fixed and variable components, is $4 per direct labor-hour. The standards call for 2 direct labor-hours per unit of output produced. Last year, the company produced 3,000 units of product and worked 6,200 direct labor-hours. Actual costs were $15,500 for variable overhead and $6,300 for fixed overhead.

Required:
a. What is the denominator level of activity?
b. What were the standard hours allowed for the output last year?
c. What was the variable overhead spending variance?
d. What was the variable overhead efficiency variance?
e. What was the fixed overhead budget variance?
f. What was the fixed overhead volume variance?

Level: Medium LO: 3,4,5,6

Answer:

a. Total overhead at the denominator level of activity $20,000
Predetermined overhead rate ..... ÷ $4/DLH
Denominator level of activity ..... 5,000 DLHs

b. Actual output ..... 3,000 units
Standard DLH per unit..... × 2 DLHs per unit
Standard DLHs allowed..... 6,000 DLHs

c. Spending variance = (AH × AR) - (AH × SR)
= ($15,500) - (6,200 × $2.80*) = $1,860 F
* $14,000 ÷ 5,000 DLHs = $2.80 per DLH

d. Efficiency variance = (AH × SR) - (SH × SR)
= (6,200 × $2.80) - (6,000* × $2.80) = $560 U
* 2 DLHs per unit × 3,000 units = 6,000 DLHs

e. Budget variance = Actual fixed overhead - Budgeted Fixed overhead
= $6,300 - $6,000 = $300 U

f. Volume variance = Fixed portion of predetermined overhead rate × (Denominator hours - Standard hours allowed)
= $1.20* (5,000 - 6,000) = $1,200 F
*$6,000 ÷ 5,000 DLH = $1.20 per DLH

124. Cajun Candy Corporation manufactures giant gourmet suckers. The cost standards developed by Cajun appear below. Manufacturing overhead at Cajun is applied to production on the basis of standard direct labor-hours:

	Standard quantity per sucker	*Standard cost per ounce or hour*	*Standard cost per sucker*
Direct materials	0.75 ounces	$20.00	$15.00
Direct labor	1.2 hours	$12.00	14.40
Variable overhead	1.2 hours	$3.00	3.60
Fixed overhead	1.2 hours	$5.00	6.00
Total standard cost per sucker			$39.00

The standards above were based on an expected annual volume of 8,000 suckers. The actual results for last year were as follows:

Number of suckers produced	8,200
Direct labor-hours incurred	10,000
Ounces of direct materials purchased	7,900
Ounces of direct materials used in production	6,070
Total cost of direct materials purchased	$156,815
Total direct labor cost	$122,800
Total variable overhead cost	$28,600
Total fixed overhead cost	$47,500

Required:
Compute the following variances for Cajun.
a. Materials price variance.
b. Materials quantity variance.
c. Labor rate variance.
d. Variable overhead spending variance.
e. Variable overhead efficiency variance.
f. Fixed overhead budget variance.

Level: Medium LO: 3,4,6,7

Answer:

a. Materials price variance = \$156,815 - (7,900 × \$20.00) = \$1,185 F
b. Materials quantity variance = (6,070 × \$20.00) - (8,200 × 0.75 × \$20.00) = \$1,600 F
c. Labor rate variance = \$122,800 - (10,000 × \$12.00) = \$2,800 U
d. Variable overhead spending variance = \$28,600 - (10,000 × \$3.00) = \$1,400 F
e. Variable overhead efficiency variance = (10,000 × \$3.00) - (8,200 × 1.2 × \$3.00) = \$480 U
f. Fixed overhead budget variance = \$47,500 - (8,000 × \$6.00) = \$500 F

125. Eastern Company uses a standard cost system in which manufacturing overhead is applied to units of product on the basis of standard direct labor-hours (DLHs). The denominator activity level is 60,000 direct labor-hours, or 300,000 units.

- A standard cost card for the company's product follows:

	Standard quantity or hours	*Standard price or rate*	*Standard cost*
Direct materials	0.25 kilogram	\$16 per kilogram	\$4
Direct labor.....	0.20 DLH	\$10 per DLH	2
Variable overhead.....	0.20 DLH	\$5 per DLH	1
Fixed overhead	0.20 DLH	\$10 per DLH	2
Total standard cost.....			\$9

- Actual data for the year follow:

Units produced and sold.....	330,000
Actual direct labor-hours worked.....	64,800
Actual variable manufacturing overhead cost.....	\$327,240
Actual fixed manufacturing overhead cost.....	\$612,000

Required:
a. Compute the variable manufacturing overhead spending and efficiency variances.
b. Compute the fixed manufacturing overhead budget and volume variances.

Level: Medium LO: 3,4,6

Answer:

a. Variable overhead variances:

Spending variance = AH(AR - SR) = 64,800($5.05* - $5.00) = $3,240 U
* $327,240 ÷ 64,800 = $5.05

Efficiency variance = SR(AH - SH) = $5.00(64,800 - 66,000*) = $6,000 F
* 330,000 × 0.20 DLH = 66,000 DLHs

b. Fixed overhead variances:

Budget variance = Actual fixed overhead - Budgeted Fixed overhead
= $612,000 - $600,000 = $12,000 U

Volume variance = Fixed rate (Denominator hours - Standard hours)
= $10.00(60,000 - 66,000) = $60,000 F

126. Pierce Company uses a standard cost system in which it applies manufacturing overhead to its product on the basis of standard direct labor-hours (DLHs). Below is the standard cost card for the product:

Direct materials, 4.5 feet at $3.80 per foot	$17.10
Direct labor, 3.0 DLHs at $9.50 per DLH	28.50
Variable overhead, 3.0 DLHs at $2.00 per DLH	6.00
Fixed overhead, 3.0 DLHs at $8.00 per DLH	24.00
	$75.60

Last year, the company produced 6,000 units of product using 17,000 direct labor-hours. The actual total fixed overhead cost for the year was $140,000 and the volume variance was $12,000, favorable.

Required:

a. Compute the total fixed overhead cost that was originally budgeted.
b. Compute the denominator activity figure that the company used in computing predetermined overhead rates.

Level: Hard LO: 5,6

Answer:

a. Fixed overhead cost applied to work in process:

3 DLHs per unit × 6,000 units × $8 per DLH.....	$144,000
Deduct favorable volume variance	12,000
Budgeted fixed overhead cost.....	$132,000

b.

Budgeted fixed overhead cost (above)	$132,000
Fixed portion of the predetermined overhead rate.....	÷ $8 per DLH
Denominator activity level	16,500 DLHs

127. Moozi Dairy Products processes and sells two products: milk and butter. Last year, Moozi budgeted $1,200,000 of fixed manufacturing overhead and chose a denominator level of activity of 80,000 machine-hours. Each unit of milk at Moozi has a standard of 0.1 machine-hours and each unit of butter has a standard of 0.08 machine-hours. Last year, Moozi processed 560,000 units of milk and 340,000 units of butter. Moozi's total fixed overhead incurred last year was $1,256,000. Actual machine-hours incurred for the year were 82,000. Moozi applies manufacturing overhead to its products on the basis of standard machine-hours.

Required:
Compute Moozi's fixed manufacturing overhead variances for last year.

Level: Medium LO: 5,6

Answer:
Fixed overhead budget variance = $1,256,000 - $1,200,000 = $56,000 U
Fixed overhead volume variance = $1,200,000 - {[(560,000 × 0.1) + (340,000 × 0.08)] × ($1,200,000/80,000)} = $48,000 F

Chapter 12 Segment Reporting and Decentralization

True/False Questions

1. Only those fixed costs labeled “common” are charged to the individual segments when preparing a segmented income statement.

   Answer: False Level: Easy LO: 1

2. A company has two divisions, each selling several product lines. If segment reports are prepared at the product line level, the division managers' salaries would be considered as common fixed costs of the product lines.

   Answer: True Level: Easy LO: 1

3. A segment margin is computed by deducting variable and traceable fixed expenses from the sales of a segment.

   Answer: True Level: Easy LO: 1

4. Those fixed costs that arise because of the existence of the segment and that would disappear if the segment were eliminated are called traceable fixed costs of the segment.

   Answer: True Level: Easy LO: 1

5. Suppose a company evaluates divisional performance using both ROI and residual income. The company's minimum required rate of return for the purposes of residual income calculations is 12%. If a division has a residual income of $6,000, then its ROI is less than 12%.

   Answer: False Level: Medium LO: 2,3

6. Return on investment (ROI) encourages managers to accept all investment decisions that will benefit the company as a whole when it is used as a measure of performance.

   Answer: False Level: Medium LO: 2

7. Just-in-time practices improve return on investment (ROI) by decreasing turnover.

   Answer: False Level: Hard LO: 2

8. Whenever the selling division must give up outside sales in order to sell internally, it has an opportunity cost that should be considered in setting the transfer price.

   Answer: True Level: Medium LO: 4 Appendix: 12

9. If transfer prices are to be based on cost, then the costs should be actual costs rather than standard costs.

   Answer: False Level: Medium LO: 4 Appendix: 12

10. Setting transfer prices at full cost can lead to bad decisions since, among other reasons, full cost does not take into account opportunity costs.

    Answer: True Level: Hard LO: 4 Appendix: 12

11. The selling division in a transfer pricing situation would want the transfer price to be set to cover at least the full cost per unit plus the lost contribution margin per unit on outside sales.

    Answer: False Level: Hard LO: 4 Appendix: 12

12. Under a responsibility accounting system, fewer expenses are charged against managers the higher one moves upward in an organization.

    Answer: False Level: Medium LO: 5

13. Responsibility accounting functions most effectively in decentralized organizations.

    Answer: True Level: Easy LO: 5

14. In a strongly centralized organization there is a large amount of freedom to make decisions at all levels of management.

    Answer: False Level: Easy LO: 5

15. All profit centers are responsibility centers, but not all responsibility centers are profit centers.

    Answer: True Level: Medium LO: 5

Multiple Choice Questions

16. If a cost is a common cost of the segments on a segmented income statement, the cost should:
    A) be allocated to the segments on the basis of segment sales.
    B) not be allocated to the segments.
    C) excluded from the income statement.
    D) treated as a product cost rather than as a period cost.

    Answer: B Level: Medium LO: 1

17. Spiedino Company sells its products to both residential and commercial customers in eight sales territories. In which of the following ways could Spiedino be segmented?
    A) by product and then further segmented by type of customer.
    B) by type of customer and then further segmented by sales territory.
    C) by sales territory and then further segmented by product line.
    D) all of the above.

    Answer: D Level: Easy LO: 1

18. Which of the following is generally considered to be part of the value chain of a manufacturing company?
    A) marketing activities
    B) customer service activities
    C) research and development activities
    D) both A and C above
    E) all of the above

    Answer: E Level: Easy LO: 1

19. A national retail company has segmented its income statement by sales territories. If each sales territory statement is further segmented by individual stores, which of the following will most likely occur?
    A) some common fixed expenses in the sales territory segmented statement will become traceable fixed expenses in the individual store segmented statement.
    B) some traceable fixed expenses in the sales territory segmented statement will become common fixed expenses in the individual store segmented statement.
    C) the sum total of the individual stores' segment margins in each sales territory will be equal to the segment margin for the sales territory.
    D) both A and C above.

    Answer: B Level: Medium LO: 1

20. Hayworth Company has just segmented last year's income statements into its ten product lines. The chief executive officer (CEO) is curious as to what effect dropping one of the product lines at the beginning of last year would have had on overall company profit. What is the best number for the CEO to look at to determine the effect of this elimination on the net operating income of the company as a whole?
    A) the product line's sales dollars.
    B) the product line's contribution margin.
    C) the product line's segment margin.
    D) the product line's segment margin minus an allocated portion of common fixed expenses.

    Answer: C Level: Easy LO: 1

21. In an income statement segmented by product line, a fixed expense that cannot be allocated among product lines on a cause-and-effect basis should be:
    A) classified as a variable expense.
    B) allocated to the product lines on the basis of sales dollars.
    C) allocated to the product lines on the basis of segment margin.
    D) classified as a common fixed expense and not allocated.
    E) classified as a traceable fixed expense and not allocated.

    Answer: D Level: Medium LO: 1

22. Managerial performance can be measured in many different ways including return on investment (ROI) and residual income. A good reason for using residual income instead of ROI is:
    A) Residual income can be computed without having to measure operating assets.
    B) Managers are more likely to accept projects that are beneficial to the company.
    C) ROI does not take into account both turnover and margin.
    D) A minimum rate of return does not have to be specified when the residual income approach is used.

    Answer: B Level: Medium LO: 2,3 Source: CMA, adapted

23. Which of the following performance measures will decrease if the minimum required rate of return increases?

	Return on Investment	*Residual Income*
A)	Yes	Yes
B)	No	Yes
C)	Yes	No
D)	No	No

Answer: B Level: Medium LO: 2,3

24. Which of the following performance measures will increase if inventory decreases and all else remains the same?

	Return on Investment	*Residual Income*
A)	Yes	Yes
B)	No	Yes
C)	Yes	No
D)	No	No

Answer: A Level: Medium LO: 2,3

25. Some investment opportunities which should be accepted from the viewpoint of the entire company may be rejected by a manager who is evaluated on the basis of:
A) return on investment.
B) residual income.
C) contribution margin.
D) segment margin.

Answer: A Level: Medium LO: 2

26. Which of the following would be an argument for using the gross cost of plant and equipment as part of operating assets in return on investment computations?
A) It is consistent with the computation of net operating income, which includes depreciation as an operating expense.
B) It is consistent with the balance sheet presentation of plant and equipment.
C) It eliminates the age of equipment as a factor in ROI computations.
D) It discourages the replacement of old, worn-out equipment because of the dramatic, adverse effect on ROI.

Answer: C Level: Medium LO: 2

27. Which of the following would not be included in operating assets in return on investment calculations?
    A) Cash.
    B) Accounts Receivable.
    C) Equipment
    D) Factory building rented to (and occupied by) another company.

    Answer: D Level: Easy LO: 2

28. Which of the following statements is correct concerning return on investment calculations?
    A) Margin equals stockholders' equity divided by sales.
    B) Return on investment equals margin divided by turnover.
    C) Turnover equals return on investment divided by margin.
    D) Sales equals turnover divided by margin.

    Answer: C Level: Hard LO: 2

29. All other things equal, which of the following would increase a division's residual income?
    A) Increase in expenses.
    B) Decrease in average operating assets.
    C) Increase in minimum required return.
    D) Decrease in net operating income.

    Answer: B Level: Medium LO: 3

30. The basic objective of the residual income approach to performance measurement and evaluation is to have a division maximize its:
    A) return on investment (ROI).
    B) cash flows.
    C) cash flows in excess of a desired minimum amount.
    D) net operating income in excess of a minimum return.

    Answer: D Level: Medium LO: 3 Source: CMA, adapted

31. Residual income:
    A) is the return on investment (ROI) percentage multiplied by average operating assets.
    B) is the net operating income earned above a certain minimum required return on sales.
    C) is the net operating income earned above a certain minimum required return on average operating assets.
    D) will always be greater than zero.

    Answer: C Level: Medium LO: 3

32. A company is analyzing the performance of responsibility centers. Controllable costs would be included in the performance reports of which of the following types of responsibility centers?

	Investment centers	*Profit Centers*
A)	No	No
B)	No	Yes
C)	Yes	Yes
D)	Yes	No

    Answer: C Level: Easy LO: 5 Source: CPA, adapted

33. Controllable revenue would be included in a performance report for a:

	Profit center	*Cost center*
A)	No	No
B)	No	Yes
C)	Yes	Yes
D)	Yes	No

    Answer: D Level: Easy LO: 5 Source: CPA, adapted

34. Walsh Company has three Stores: X, Y, and Z. During August, the variable expenses in Store X were $90,000 and the contribution margin ratio was 25%. Store Y had a contribution margin of $27,000 and a contribution margin ratio of 20%. Store Z had variable expenses of $120,000 and a variable expense ratio of 60% of sales. For August, Walsh Company's sales were:
    A) $318,000
    B) $455,000
    C) $485,000
    D) $555,000

    Answer: B Level: Medium LO: 1

35. Channing Company has two divisions, S and T. The company's overall contribution margin ratio is 30% when sales in the two divisions total $750,000. If variable expenses are $450,000 in Division S, and if Division S's contribution margin ratio is 25%, then sales in Division T must be:
A) $75,000
B) $150,000
C) $225,000
D) $300,000

Answer: B Level: Hard LO: 1

36. Insider Company has two divisions, J and K. During March, the contribution margin in J was $30,000. The contribution margin ratio in K was 40%, its sales were $125,000, and its segment margin was $32,000. The common fixed expenses in the company were $40,000, and the company's net operating income was $18,000. The segment margin for Division J was:
A) $26,000
B) $32,000
C) $8,000
D) $58,000

Answer: A Level: Hard LO: 1

37. Davison Inc. consists of two districts, A and B. The company as a whole had sales of $400,000, a contribution margin ratio of 25% and a combined segment margin totaling $35,000. District A had sales of $90,000 during May, a contribution margin ratio of 45%, and a segment margin of $16,000. If the net operating income of Davison Inc. for May is $12,000, the traceable fixed expenses in District B must have been:
A) $23,000
B) $24,500
C) $49,000
D) $40,500

Answer: D Level: Hard LO: 1

38. Domingos Company has two product lines, C and J. Line C has sales of $100,000 during March, a segment margin ratio of 19%, and traceable fixed expenses of $20,000. The company as a whole had a contribution margin ratio of 25% and $105,000 in total contribution margin. Based on this information, total variable expenses for product J must have been:
A) $61,000
B) $176,000
C) $315,000
D) $254,000

Answer: D Level: Hard LO: 1

39. Bennett Company has two stores, P and Q. During April, Store P had a segment margin of $8,000 and variable expenses equal to 65% of sales. Traceable fixed expenses for Store Q were $18,000. Bennett Company as a whole had a contribution margin ratio of 40%, a combined segment margin of $20,000, and sales of $180,000. Given this data, the sales for store Q were:
A) $157,143
B) $60,000
C) $30,000
D) $120,000

Answer: B Level: Hard LO: 1

40. Brummitt Corporation has two divisions: the BAJ Division and the CBB Division. The corporation's net operating income is $10,700. The BAJ Division's divisional segment margin is $76,100 and the CBB Division's divisional segment margin is $42,300. What is the amount of the common fixed expense not traceable to the individual divisions?
A) $86,800
B) $107,700
C) $53,000
D) $118,400

Answer: B Level: Medium LO: 1

41. Sorto Corporation has two divisions: the East Division and the West Division. The corporation's net operating income is $93,200. The East Division's divisional segment margin is $223,200 and the West Division's divisional segment margin is $15,900. What is the amount of the common fixed expense not traceable to the individual divisions?
A) $316,400
B) $145,900
C) $109,100
D) $239,100

Answer: B Level: Medium LO: 1

42. Quinnett Corporation has two divisions: the Export Products Division and the Business Products Division. The Export Products Division's divisional segment margin is $34,300 and the Business Products Division's divisional segment margin is $86,700. The total amount of common fixed expenses not traceable to the individual divisions is $95,600. What is the company's net operating income?
A) $216,600
B) $121,000
C) $25,400
D) ($121,000)

Answer: C Level: Easy LO: 1

43. Gunderman Corporation has two divisions: the Alpha Division and the Charlie Division. The Alpha Division has sales of $230,000, variable expenses of $131,100, and traceable fixed expenses of $63,300. The Charlie Division has sales of $540,000, variable expenses of $307,800, and traceable fixed expenses of $120,700. The total amount of common fixed expenses not traceable to the individual divisions is $119,200. What is the company's net operating income?
A) $147,100
B) $331,100
C) $27,900
D) $211,900

Answer: C Level: Easy LO: 1

44. Given the following data:

Return on investment	25%
Sales	$100,000
Average operating assets	$40,000
Turnover	2.5
Minimum required rate of return	18%
Margin on sales	10%

The residual income would be:
A) $2,800
B) $0
C) $6,000
D) $8,000

Answer: A Level: Medium LO: 2,3

45. Given the following data:

Average operating assets	$250,000
Total liabilities	$100,000
Sales	$600,000
Contribution margin	$150,000
Net operating income	$30,000

Return on investment (ROI) would be:
A) 5%
B) 12%
C) 25%
D) 60%

Answer: B Level: Medium LO: 2

46. Last year a company had sales of $400,000, a turnover of 2.4, and a return on investment of 36%. The company's net operating income for the year was:
A) $144,000
B) $120,000
C) $80,000
D) $60,000

Answer: D Level: Medium LO: 2

47. Cabot Company had the following results during June: net operating income, $2,500; turnover, 4; and ROI, 20%. Cabot Company's average operating assets were:
A) $50,000
B) $200,000
C) $12,500
D) $10,000

Answer: C Level: Hard LO: 2

48. The following information pertains to Quest Company's Gold Division for last year:

Sales	$311,000
Variable expenses	$250,000
Traceable fixed expenses	$50,000
Average operating assets	$40,000

The Gold Division's return on investment is:
A) 10.00%
B) 13.33%
C) 27.50%
D) 30.00%

Answer: C Level: Medium LO: 2 Source: CPA, adapted

49. The following information relates to last year's operations at the Paper Division of Germane Corporation:

Minimum required rate of return	15%
Return on investment (ROI)	18%
Sales	$810,000
Turnover (on operating assets)	5 times

What was the Paper Division's net operating income last year?
A) $24,300
B) $29,160
C) $145,800
D) $162,000

Answer: B Level: Hard LO: 2

50. The following information is available on Company X:

Sales	$90,000
Net operating income	$3,600
Average operating assets	$30,000
Stockholders' equity	$25,000
Minimum required rate of return	10%

Company X's residual income would be:
A) $1,100
B) $5,400
C) $360
D) $600

Answer: D Level: Medium LO: 3

51. The following information relates to last year's operations at the Bread Division of Rison Bakery, Inc.:

Residual income	$12,000
Net operating income	$60,000
Sales	$300,000
Average operating assets	$400,000

What was the Bread Division's minimum required rate of return last year?
A) 12%
B) 4%
C) 15%
D) 20%

Answer: A Level: Hard LO: 3

52. Division X makes a part that it sells to customers outside of the company. Data concerning this part appear below:

Selling price to outside customers.....	$75
Variable cost per unit	$50
Total fixed costs	$400,000
Capacity in units.....	25,000

Division Y of the same company would like to use the part manufactured by Division X in one of its products. Division Y currently purchases a similar part made by an outside company for $70 per unit and would substitute the part made by Division X. Division Y requires 5,000 units of the part each period. Division X has ample excess capacity to handle all of Division Y's needs without any increase in fixed costs and without cutting into outside sales of the part. What is the lowest acceptable transfer price from the standpoint of the selling division?

A) $75
B) $66
C) $16
D) $50

Answer: D Level: Medium LO: 4 Appendix: 12

53. The Blade Division of Dana Company produces hardened steel blades. One-third of the Blade Division's output is sold to the Lawn Products Division of Dana; the remainder is sold to outside customers. The Blade Division's estimated sales and standard cost data for the next year are as follows:

	Sales To	
	Lawn Products	*Outsiders*
Unit sales	10,000	20,000
Sales	$15,000	$40,000
Variable costs	$10,000	$20,000
Fixed costs	$3,000	$6,000

The Lawn Products Division has an opportunity to purchase 10,000 identical quality blades from an outside supplier at a cost of $1.25 per unit on a continuing basis. The Blade Division cannot sell any additional products to outside customers because the market is saturated. This decision would have no effect on the company's total fixed costs. If the Blade Division refuses to meet the $1.25 price internally and the Lawn Products Division starts buying from the outside supplier, the company as a whole will be:

A) better off by $500 each period.
B) worse off by $1,500 each period.
C) better off by $2,500 each period.
D) worse off by $2,500 each period.

Answer: D Level: Hard LO: 4 Source: CPA, adapted Appendix: 12

54. Using the formula in the text, if the lowest acceptable transfer price for the viewpoint of the selling division is $80 and the lost contribution margin per unit on outside sales is $30, then the variable cost per unit must be:

A) $50
B) $30
C) $110
D) $80

Answer: A Level: Medium LO: 4 Appendix: 12

55. Mar Company has two decentralized divisions, X and Y. Division X has always purchased certain units from Division Y at $75 per unit. Because Division Y plans to raise the price to $100 per unit, Division X is seeking an outside supplier of the part for the old price of $75 per unit. Division Y's costs follow:

Y's variable costs per unit	$70
Y's annual fixed costs	$15,000
Y's annual production of these units for X	1,000 units

If Division X buys from an outside supplier, the facilities Division Y uses to manufacture these units would be idle. What would be the result if the top management of Mar Company insists that Division X purchase from Division Y at a transfer price of $100 per unit?

A) it would reduce the company's overall profit because Division X should buy from outside suppliers at $75 per unit if possible.
B) it would provide lower overall company net operating income than the old transfer price of $75 per unit.
C) it would provide higher overall company net operating income than the old transfer price of $75 per unit.
D) it would be more profitable for the company than allowing X to buy from outside suppliers at $75 per unit.

Answer: D Level: Hard LO: 4 Source: CPA, adapted Appendix: 12

Use the following to answer questions 56-58:

Meyer Company has two sales areas: North and South. During April, the contribution margin in the North was $90,000, or 30% of sales. The segment margin in the South was $25,000, or 10% of sales. Traceable fixed expenses were $30,000 in the North and $15,000 in the South. Meyer Company reported a total net operating income of $52,000.

56. The total sales for Meyer Company were:
A) $983,333
B) $430,000
C) $550,000
D) $480,000

Answer: C Level: Hard LO: 1

57. The total fixed expenses for Meyer Company were:
    A) $45,000
    B) $33,000
    C) $85,000
    D) $78,000

    Answer: D Level: Hard LO: 1

58. The variable costs for the South area were:
    A) $180,000
    B) $210,000
    C) $225,000
    D) $120,000

    Answer: B Level: Hard LO: 1

Use the following to answer questions 59-62:

The Rialto Company's income statement for May is given below:

	Total	*Division L*	*Division M*
Sales	$300,000	$165,000	$135,000
Variable expenses	153,000	99,000	54,000
Contribution margin	147,000	66,000	81,000
Traceable fixed expenses	97,000	45,000	52,000
Segment margin	50,000	$ 21,000	$ 29,000
Common fixed expenses	25,000		
Net operating income	$ 25,000		

59. If sales for Division L increase $30,000 with a $9,000 increase in the Division's traceable fixed expenses, the overall company net operating income should:
    A) decrease by $4,000
    B) increase by $21,000
    C) increase by $3,000
    D) increase by $5,700

    Answer: C Level: Medium LO: 1

60. During May, the sales clerks in Division L received salaries totaling $25,000. Assume that during June the salaries of these sales clerks are discontinued and instead they are paid a commission of 18% of sales. If sales in Division L increase by $35,000 as a result of this change, the June segment margin for Division L should be:
    A) $30,300
    B) $24,000
    C) $5,300
    D) $60,000

    Answer: B Level: Hard LO: 1

61. If the sales in Division M increase by 25% while traceable fixed expenses decrease by $7,000, the segment margin for Division M should:
    A) increase by $13,250
    B) increase by $7,250
    C) decrease by $17,750
    D) increase by $27,250

    Answer: D Level: Medium LO: 1

62. A proposal has been made that will lower variable costs in Division M to 37% of sales. The reduction can be accomplished only if Division M's traceable fixed costs are allowed to increase $12,000. If this proposal is implemented, and if sales remain constant, overall company net operating income should:
    A) increase by $12,000
    B) increase by $16,050
    C) decrease by $7,950
    D) decrease by $12,000

    Answer: C Level: Hard LO: 1

Use the following to answer questions 63-64:

Miller Company has two sales areas: North and South. In June, the contribution margin in the North was $50,000, or 20% of sales. The segment margin in the South was $15,000, or 8% of sales. Traceable fixed expenses are $15,000 in the North and $10,000 in the South. During June, Miller Company reported total net operating income of $26,000.

63. The total fixed expenses (traceable and common) for Miller Company in June were:
    A) $49,000
    B) $25,000
    C) $24,000
    D) $50,000

    Answer: A Level: Hard LO: 1

64. The variable costs for the South in June were:
    A) $230,000
    B) $185,000
    C) $162,500
    D) $65,000

    Answer: C Level: Hard LO: 1

Use the following to answer questions 65-66:

Nantua Sunglasses Corporation has two divisions, Southern and Northern. The following information was taken from last year's income statement segmented by division:

	Total	*Southern*	*Northern*
Sales	$4,000,000	$2,500,000	$1,500,000
Contribution margin	$1,650,000	$1,050,000	$600,000
Divisional segment margin	$850,000	$700,000	$150,000

Net operating income last year for Nantua Company was $400,000.

65. In last year's income statement segmented by division, what were Nantua's total common fixed expenses?
    A) $450,000
    B) $800,000
    C) $1,250,000
    D) $1,300,000

    Answer: A Level: Medium LO: 1

66. If the Northern Division's sales last year were $300,000 higher, how would this have changed Nantua's net operating income? (Assume no change in the revenue or cost structure.)
    A) $30,000 increase
    B) $80,000 increase
    C) $120,000 increase
    D) $300,000 increase

    Answer: C Level: Medium LO: 1

Use the following to answer questions 67-68:

Brandon, Inc. has provided the following data for last year's operations:

Sales	$100,000
Net operating income	$6,000
Average operating assets	$40,000
Stockholders' equity	$25,000
Minimum required rate of return	10%

67. Brandon's residual income is:
    A) $2,000
    B) $4,000
    C) $3,500
    D) $2,500

    Answer: A Level: Medium LO: 3

68. Brandon's return on investment (ROI) is:
    A) 6%
    B) 10%
    C) 15%
    D) 24%

    Answer: C Level: Medium LO: 2

Use the following to answer questions 69-70:

The following selected data pertain to the belt division of Allen Corp. for last year:

Sales	$1,000,000
Average operating assets	$400,000
Net operating income	$100,000
Turnover	2.5
Minimum required return	20%

69. How much is the return on investment?
    A) 25%
    B) 10%
    C) 20%
    D) 15%

    Answer: A Level: Medium LO: 2 Source: CPA, adapted

70. How much is the residual income?
    A) $100,000
    B) $20,000
    C) $80,000
    D) $900,000

    Answer: B Level: Medium LO: 3 Source: CPA, adapted

Use the following to answer questions 71-72:

Yola Co.'s East Division had the following results last year:

Sales	$620,000
Variable expenses	$500,000
Traceable fixed expenses	$100,000
Average operating assets	$50,000
Minimum required rate of return	18%

71. The return on investment was:
    A) 40.00%
    B) 29.00%
    C) 18.00%
    D) 8.33%

    Answer: A Level: Easy LO: 2 Source: CPA, adapted

72. The residual income was:
    A) $3,600
    B) $9,000
    C) $11,000
    D) $20,000

    Answer: C Level: Easy LO: 3 Source: CPA, adapted

Use the following to answer questions 73-74:

Data pertaining to Mar Co.'s Alo Division for last year follows:

Sales	$100,000
Variables expenses	$60,000
Traceable fixed expenses	$10,000
Average operating assets	$20,000
Minimum required rate of return	12%

73. Alo's return on investment was:
    A) 60%
    B) 75%
    C) 138%
    D) 150%

    Answer: D Level: Easy LO: 2 Source: CPA, adapted

74. Alo's residual income was:
    A) $27,600
    B) $30,000
    C) $32,400
    D) $40,000

    Answer: A Level: Easy LO: 3 Source: CPA, adapted

Use the following to answer questions 75-76:

The following selected data pertain to the Maple Division of Beyer Corp. for last year:

Sales	$300,000
Average operating assets	$100,000
Net operating income	$20,000
Turnover	3.0
Minimum required rate of return	12%

75. The return on investment was:
    A) 6.67%
    B) 8.00%
    C) 20.00%
    D) 33.33%

    Answer: C Level: Easy LO: 2 Source: CPA, adapted

76. The residual income was:
    A) $2,400
    B) $5,600
    C) $6,667
    D) $8,000

    Answer: D Level: Easy LO: 3 Source: CPA, adapted

Use the following to answer questions 77-78:

The Northern Division of the Kimball Company reported the following data for last year:

Sales	$800,000
Operating expenses	$690,000
Stockholders' equity	$250,000
Average operating assets	$400,000
Minimum required rate of return	14%

77. The return on investment last year for the Northern Division was:
    A) 50%
    B) 80%
    C) 27.5%
    D) 44%

    Answer: A Level: Medium LO: 2

78. The residual income for the Northern Division last year was:
    A) $112,000
    B) $144,000
    C) $110,000
    D) $54,000

    Answer: B Level: Medium LO: 3

Use the following to answer questions 79-82:

The following data are for the Akron Division of Consolidated Rubber, Inc.:

Sales	$750,000
Net operating income	$45,000
Stockholders' equity	$75,000
Average operating assets	$250,000
Residual income	$15,000

79. The margin used in calculating the return on investment for the past year was:
A) 6.00%
B) 8.67%
C) 10.00%
D) 8.00%

Answer: A Level: Medium LO: 2

80. The return on investment for the past year was:
A) 6%
B) 30%
C) 18%
D) 26%

Answer: C Level: Medium LO: 2

81. The turnover used in calculating the return on investment for the past year was:
A) 1.4
B) 3.3
C) 10.0
D) 3.0

Answer: D Level: Medium LO: 2

82. The minimum required rate of return used in calculating the residual income for the past year was:
A) 30%
B) 12%
C) 15%
D) 6%

Answer: B Level: Hard LO: 3

Use the following to answer questions 83-86:

Cebe Products is a division of a major corporation. Last year the division had total sales of $26,800,000, net operating income of $1,768,800, and average operating assets of $8,000,000. The company's minimum required rate of return is 12%.

83. The division's margin is closest to:
    A) 22.1%
    B) 6.6%
    C) 29.9%
    D) 36.5%

    Answer: B Level: Easy LO: 2

84. The division's turnover is closest to:
    A) 0.22
    B) 2.74
    C) 15.15
    D) 3.35

    Answer: D Level: Easy LO: 2

85. The division's return on investment (ROI) is closest to:
    A) 74.0%
    B) 5.1%
    C) 22.1%
    D) 1.5%

    Answer: C Level: Easy LO: 2

86. The division's residual income is closest to:
    A) $808,800
    B) $1,768,800
    C) $(1,447,200)
    D) $2,728,800

    Answer: A Level: Easy LO: 3

Use the following to answer questions 87-90:

Dealey Products is a division of a major corporation. The following data are for the last year of operations:

Sales	$12,700,000
Net operating income	$1,549,400
Average operating assets	$5,000,000
The company's minimum required rate of return	10%

87. The division's margin is closest to:
    A) 12.2%
    B) 39.4%
    C) 31.0%
    D) 51.6%

    Answer: A Level: Easy LO: 2

88. The division's turnover is closest to:
    A) 0.31
    B) 2.54
    C) 8.20
    D) 1.94

    Answer: B Level: Easy LO: 2

89. The division's return on investment (ROI) is closest to:
    A) 31.0%
    B) 3.8%
    C) 78.7%
    D) 8.8%

    Answer: A Level: Easy LO: 2

90. The division's residual income is closest to:
    A) $279,400
    B) $1,549,400
    C) $1,049,400
    D) $2,049,400

    Answer: C Level: Easy LO: 3

Use the following to answer questions 91-94:

The Portland Division's operating data for the past two years is as follows:

	Year 1	*Year 2*
Return on investment	12%	24%
Stockholders' equity	$500,000	$200,000
Net operating income	?	$288,000
Turnover	?	2
Sales	$1,600,000	?

The Portland Division's margin in Year 2 was 150% of the margin for Year 1.

91. The turnover for Year 1 was:
    A) 10.00
    B) 2.00
    C) 1.50
    D) 3.20

    Answer: C Level: Hard LO: 2

92. The net operating income for Year 1 was:
    A) $192,000
    B) $128,000
    C) $266,667
    D) $208,000

    Answer: B Level: Hard LO: 2

93. The sales for Year 2 were:
    A) $750,000
    B) $2,000,000
    C) $3,846,154
    D) $2,400,000

    Answer: D Level: Hard LO: 2

94. The average operating assets for Year 2 were:
    A) $750,000
    B) $400,000
    C) $1,200,000
    D) $800,000

    Answer: C Level: Hard LO: 2

Use the following to answer questions 95-96:

Data from the Trendall Company for last year follow:

Sales	$750,000
Stockholders' equity	$400,000
Return on investment	12%
Turnover	1.5
Minimum required rate of return	10%

95. The average operating assets were:
    A) $300,000
    B) $400,000
    C) $500,000
    D) $600,000

    Answer: C Level: Medium LO: 2

96. The margin used in calculating return on investment was:
    A) 6.67%
    B) 16.67%
    C) 20.00%
    D) 8.00%

    Answer: D Level: Medium LO: 2

Use the following to answer questions 97-99:

Ahalt Industries is a division of a major corporation. Data concerning the most recent year appears below:

Sales	$17,340,000
Net operating income	$1,248,480
Average operating assets	$6,000,000

97. The division's margin is closest to:
    A) 41.8%
    B) 7.2%
    C) 20.8%
    D) 34.6%

    Answer: B Level: Easy LO: 2

98. The division's turnover is closest to:
    A) 2.39
    B) 13.89
    C) 0.21
    D) 2.89

    Answer: D Level: Easy LO: 2

99. The division's return on investment (ROI) is closest to:
    A) 1.5%
    B) 20.8%
    C) 5.3%
    D) 17.2%

    Answer: B Level: Easy LO: 2

Use the following to answer questions 100-102:

Beach Industries is a division of a major corporation. Last year the division had total sales of $11,360,000, net operating income of $624,800, and average operating assets of $4,000,000.

100. The division's margin is closest to:
    A) 15.6%
    B) 35.2%
    C) 5.5%
    D) 40.7%

    Answer: C Level: Easy LO: 2

101. The division's turnover is closest to:
    A) 2.84
    B) 18.18
    C) 2.46
    D) 0.16

    Answer: A Level: Easy LO: 2

102. The division's return on investment (ROI) is closest to:
    A) 0.9%
    B) 15.6%
    C) 4.1%
    D) 13.5%

    Answer: B Level: Easy LO: 2

Use the following to answer questions 103-104:

Division A makes a part with the following characteristics:

Production capacity in units	15,000 units
Selling price to outside customers	$30
Variable cost per unit	$20
Fixed cost per unit	$4
Total fixed costs	$60,000

Division B, another division of the same company, would like to purchase 5,000 units of the part each period from Division A. Division B is now purchasing these parts from an outside supplier at a price of $28 each.

103. Suppose that Division A has ample idle capacity to handle all of Division B's needs without any increase in fixed costs and without cutting into sales to outside customers. If Division A refuses to accept the $28 price internally, the company as a whole will be:
A) worse off by $40,000 each period.
B) worse off by $20,000 each period.
C) better off by $10,000 each period.
D) worse off by $30,000 each period.

Answer: A Level: Medium LO: 4 Appendix: 12

104. Suppose that Division A is operating at capacity and can sell all of its output to outside customers at its usual selling price. If Division A sells the parts to Division B at $28 per unit (Division B's outside price), the company as a whole will be:
A) better off by $20,000 each period.
B) worse off by $10,000 each period.
C) worse off by $40,000 each period.
D) There will be no change in the status of the company as a whole.

Answer: B Level: Medium LO: 4 Appendix: 12

Use the following to answer questions 105-107:

Division T of Clocker Company makes a timer which it sells for $30 to outside customers. The division has supplied the following data concerning the timer:

Monthly capacity.....	12,000 timers
Variable cost per unit	$15
Fixed cost per unit.....	$10

Presently, Division S of Clocker Company is currently buying 5,000 similar timers each month from an overseas supplier at $27 each. Division S would like to acquire its timers from Division T if the price is right.

105. Suppose Division T is operating at capacity and can sell all of the timers it produces to outside customers at its usual selling price. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?
A) $30
B) $27
C) $25
D) $15

Answer: A Level: Medium LO: 4 Appendix: 12

106. Suppose Division T is operating at capacity and can sell all of the timers it produces to outside customers at its usual selling price. If Division T meets the price of the overseas supplier and sells 5,000 timers to Division S each month, the effect on the monthly net operating income of the company as a whole will be:
A) increase of $15,000
B) decrease of $15,000
C) decrease of $60,000
D) increase of $10,000

Answer: B Level: Hard LO: 4 Appendix: 12

107. Suppose that Division T can sell only 10,000 timers to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?
A) $24
B) $27
C) $30
D) $15

Answer: A Level: Hard LO: 4 Appendix: 12

Use the following to answer questions 108-109:

Division A of Tripper Company produces a part that it sells to other companies. Sales and cost data for the part follow:

Capacity in units	60,000
Selling price per unit	$40
Variable costs per unit	$28
Fixed costs per unit at capacity	$9

Division B, another division of Tripper Company, would like to buy this part from Division A. Division B is presently purchasing the part from an outside source at $38 per unit. If Division A sells to Division B, $1 in variable costs can be avoided.

108. Assume that Division A is presently operating at capacity. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?
A) $37
B) $39
C) $36
D) $38

Answer: B Level: Hard LO: 4 Appendix: 12

109. Assume that Division A has ample idle capacity to handle all of Division B's needs without any increase in fixed costs and without cutting into outside sales. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?
A) $40
B) $39
C) $28
D) $27

Answer: D Level: Hard LO: 4 Appendix: 12

Use the following to answer questions 110-111:

Division S of Kracker Company makes a part that it sells to other companies. Data on that part appear below:

Selling price on the intermediate market	$30
Variable costs per unit.....	$22
Fixed costs per unit (based on capacity)	$7
Capacity in units.....	50,000

Division B, another division of Kracker Company, presently is purchasing 10,000 units of a similar product each period from an outside supplier for $28 per unit, but would like to begin purchasing from Division S.

110. Suppose that Division S has ample idle capacity to handle all of Division B's needs without any increase in fixed costs or cutting into sales to outside customers. If Division S refuses to accept a transfer price of $28 or less and Division B continues to buy from the outside supplier, the company as a whole will:
A) gain $20,000 in potential profit.
B) lose $60,000 in potential profit.
C) lose $70,000 in potential profit.
D) lose $20,000 in potential profit.

Answer: B Level: Medium LO: 4 Appendix: 12

111. Suppose that Division S can sell all that it can produce to outside customers. If Division S sells to Division B at a price of $28 per unit, the company as a whole will be:
A) worse off by $80,000 each period.
B) worse off by $70,000 each period.
C) better off by $20,000 each period.
D) worse off by $20,000 each period.

Answer: D Level: Medium LO: 4 Appendix: 12

Use the following to answer questions 112-114:

Division 1 of Ace Company makes and sells wheels that can either be sold to outside customers or transferred to Division 2. The following data are available from last month:

Division 1:	
Selling price per wheel to outside customers	$50
Variable cost per wheel when sold to outside customers	$35
Capacity in wheels	15,000
Division 2:	
Number of wheels needed per month	5,000
Price per wheel paid to an outside supplier	$47

If Division 1 sells the wheels to Division 2, Division 1 can avoid $2 per wheel in sales commissions.

112. Suppose that Division 1 sells 7,500 units per month to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division if Division 2 requires 5,000 units per month from Division 1?
A) $33
B) $35
C) $47
D) $50

Answer: A Level: Medium LO: 4 Appendix: 12

113. What is the maximum price per wheel that Division 2 should be willing to pay Division 1 if a transfer were to take place?
A) $33
B) $35
C) $47
D) $50

Answer: C Level: Medium LO: 4 Appendix: 12

114. Suppose that Division 1 sells 11,500 units each month to outside customers. According to the formula in the text, what is the lowest acceptable transfer price from the viewpoint of the selling division?
A) $47.00
B) $43.50
C) $37.50
D) $34.73

Answer: C Level: Hard LO: 4 Appendix: 12

Essay Questions

115. Omstadt Company produces and sells only two products that are referred to as RIPS and PITS. Production is "for order" only, and no finished goods inventories are maintained; work in process inventories are negligible.
The following data have been extracted relating to last month:

	RIPS	*PITS*
Sales	$180,000	$180,000
Manufacturing costs:		
Materials	$18,000	$24,000
Labor	$54,000	$48,000
Overhead	$72,000	$84,000
Selling expenses	$14,400	$10,080
Administrative expenses	$12,000	$18,000

An analysis has been made of the manufacturing overhead. Although the items listed above are traceable to the products, $36,000 of the overhead assigned to RIPS and $72,000 of that assigned to PITS is fixed. The balance of the overhead is variable.

Selling expenses consist entirely of commissions paid as a percentage of sales. Direct labor is completely variable.

Administrative expenses in the data above are fixed and cannot be traced to the products but have been arbitrarily allocated to the products.

Required:

Prepare a segmented income statement, in total and for the two products. Use the contribution approach.

Level: Medium LO: 1

Answer:

	Total	*RIPS*	*PITS*
Sales	$360,000	$180,000	$180,000
Less variable expenses:			
Materials	42,000	18,000	24,000
Labor	102,000	54,000	48,000
Manufacturing overhead	48,000	36,000	12,000
Selling expense	24,480	14,400	10,080
Total variable expenses	216,480	122,400	94,080
Contribution margin	143,520	57,600	85,920
Less fixed expenses:			
Manufacturing overhead	108,000	36,000	72,000
Segment margin	35,520	$ 21,600	$ 13,920
Less common expense:			
Administrative expense	30,000		
Net operating income	$ 5,520		

116. Financial data for Redstone Company for last year appear below:

Redstone Company
Statements of Financial Position

	Beginning Balance	*Ending Balance*
Assets:		
Cash	$120,000	$160,000
Accounts receivable	110,000	100,000
Inventory	50,000	60,000
Plant and equipment (net)	180,000	160,000
Investment in Balsam Company	50,000	60,000
Land (undeveloped)	120,000	120,000
Total assets	$630,000	$660,000
Liabilities and owners' equity:		
Accounts payable	$ 70,000	$ 90,000
Long-term debt	500,000	500,000
Owners' equity	60,000	70,000
Total liabilities and owners' equity	$630,000	$660,000

Redstone Company
Income Statement

Sales		$1,222,000
Less operating expenses		1,099,800
Net operating income		122,200
Less interest and taxes:		
Interest expense	$60,000	
Tax expense	20,000	80,000
Net income		$ 42,200

The company paid dividends of $32,200 last year. The "Investment in Balsam Company" on the statement of financial position represents an investment in the stock of another company.

Required:

a. Compute the company's margin, turnover, and return on investment for last year.
b. The Board of Directors of Redstone has set a minimum required return of 25%. What was the company's residual income last year?

Level: Medium LO: 2,3

Answer:

a. Operating assets do not include investments in other companies or in undeveloped land.

	Beginning Balance	*Ending Balance*
Cash	$120,000	$160,000
Accounts receivable	110,000	100,000
Inventory	50,000	60,000
Plant and equipment (net)	180,000	160,000
Total operating assets	$460,000	$480,000

Average operating assets = ($460,000 + $480,000) ÷ 2
= $470,000

Margin = Net operating income ÷ Sales
= $122,200 ÷ $1,222,000 = 10%

Turnover = Sales ÷ Average operating assets
= $1,222,000 ÷ $470,000 = 2.6

ROI = Margin × Turnover
= 10% × 2.6 = 26%

b.

Net operating income	$122,200
Minimum required return (25% × $470,000)	117,500
Residual income	$ 4,700

117. Eban Wares is a division of a major corporation. The following data are for the latest year of operations:

Sales	$10,890,000
Net operating income	$609,840
Average operating assets	$3,000,000
The company's minimum required rate of return	16%

Required:
a. What is the division's margin?
b. What is the division's turnover?
c. What is the division's return on investment (ROI)?
d. What is the division's residual income?

Level: Easy LO: 2,3

Answer:
a. Margin = Net operating income ÷ Sales = $609,840 ÷ $10,890,000 = 5.6%
b. Turnover = Sales ÷ Average operating assets = $10,890,000 ÷ $3,000,000 = 3.6
c. ROI = Net operating income ÷ Average operating assets = $609,840 ÷ $3,000,000 = 20.3%
d. Residual income = Net operating income - Minimum required rate of return × Average operating assets = $609,840 - 16% × $3,000,000 = $129,840

118. Ferrel Wares is a division of a major corporation. The following data are for the latest year of operations:

Sales	$25,550,000
Net operating income	$1,149,750
Average operating assets	$7,000,000
The company's minimum required rate of return	14%

Required:
a. What is the division's return on investment (ROI)?
b. What is the division's residual income?

Level: Easy LO: 2,3

Answer:
a. ROI = Net operating income ÷ Average operating assets = $1,149,750 ÷ $7,000,000 = 16.4%
b. Residual income = Net operating income - Minimum required rate of return × Average operating assets = $1,149,750 - 14% × $7,000,000 = $169,750

119. Geary Industries is a division of a major corporation. Last year the division had total sales of $7,920,000, net operating income of $190,080, and average operating assets of $3,000,000. The company's minimum required rate of return is 16%.

Required:
a. What is the division's margin?
b. What is the division's turnover?
c. What is the division's return on investment (ROI)?

Level: Easy LO: 2

Answer:
a. Margin = Net operating income ÷ Sales = $190,080 ÷ $7,920,000 = 2.4%
b. Turnover = Sales ÷ Average operating assets = $7,920,000 ÷ $3,000,000 = 2.6
c. ROI = Net operating income ÷ Average operating assets = $190,080 ÷ $3,000,000 = 6.3%

120. Heady Fabrication is a division of a major corporation. Last year the division had total sales of $6,480,000, net operating income of $667,440, and average operating assets of $2,000,000. The company's minimum required rate of return is 10%.

Required:
What is the division's return on investment (ROI)?

Level: Easy LO: 2

Answer:
ROI = Net operating income ÷ Average operating assets = $667,440 ÷ $2,000,000 = 33.4%

121. Idom Industries is a division of a major corporation. The following data are for the latest year of operations:

Sales	$12,480,000
Net operating income	$449,280
Average operating assets	$4,000,000
The company's minimum required rate of return	12%

Required:
What is the division's residual income?

Level: Easy LO: 3

Answer:
Residual income = Net operating income - Minimum required rate of return × Average operating assets = $449,280 - 12% × $4,000,000 = -$30,720

122. Fedori Corporation has a Parts Division that does work for other Divisions in the company as well as for outside customers. The company's Machinery Division has asked the Parts Division to provide it with 4,000 special parts each year. The special parts would require $23.00 per unit in variable production costs.

The Machinery Division has a bid from an outside supplier for the special parts at $37.00 per unit. In order to have time and space to produce the special part, the Parts Division would have to cut back production of another part-the YR24 that it presently is producing. The YR24 sells for $40.00 per unit, and requires $28.00 per unit in variable production costs. Packaging and shipping costs of the YR24 are $3.00 per unit. Packaging and shipping costs for the new special part would be only $1.50 per unit. The Parts Division is now producing and selling 15,000 units of the YR24 each year. Production and sales of the YR24 would drop by 20% if the new special part is produced for the Machinery Division.

Required:
a. What is the range of transfer prices within which both the Divisions' profits would increase as a result of agreeing to the transfer of 4,000 special parts per year from the Parts Division to the Machinery Division?
b. Is it in the best interests of Fedori Corporation for this transfer to take place? Explain.

Level: Hard LO: 4 Appendix: 12

Answer:

a. From the perspective of the Parts Division, profits would increase as a result of the transfer if and only if:
Transfer price ≥ Variable cost + Opportunity cost
The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred:
Opportunity cost = [($40.00 - $28.00 - $3.00) × 3,000*] / 4,000 = $6.75
* 20% × 15,000 = 3,000
Therefore, Transfer price ≥ ($23.00 + $1.50) + $6.75 = $31.25.

From the viewpoint of the Machinery Division, the transfer price must be less than the cost of buying the units from the outside supplier. Therefore, Transfer price < $37.00.

Combining the two requirements, we get the following range of transfer prices:
$31.25 ≤ Transfer price ≤ $37.00.

b. Yes, the transfer should take place. From the viewpoint of the entire company, the cost of transferring the units within the company is $31.25, but the cost of purchasing the special parts from the outside supplier is $37.00. Therefore, the company's profits increase on average by $5.75 for each of the special parts that is transferred within the company, even though this would cut into production and sales of another product.

123. Division B has asked Division A of the same company to supply it with 6,000 units of part L763 this year to use in one of its products. Division B has received a bid from an outside supplier for the parts at a price of $17.00 per unit. Division A has the capacity to produce 30,000 units of part L763 per year. Division A expects to sell 27,000 units of part L763 to outside customers this year at a price of $18.00 per unit. To fill the order from Division B, Division A would have to cut back its sales to outside customers. Division A produces part L763 at a variable cost of $9.00 per unit. The cost of packing and shipping the parts for outside customers is $1.00 per unit. These packing and shipping costs would not have to be incurred on sales of the parts to Division B.

Required:

a. What is the range of transfer prices within which both the Divisions' profits would increase as a result of agreeing to the transfer of 6,000 parts this year from Division B to Division A?
b. Is it in the best interests of the overall company for this transfer to take place? Explain.

Level: Medium LO: 4

Answer:

a. From the perspective of Division B, profits would increase as a result of the transfer if and only if:
Transfer price ≥ Variable cost + Opportunity cost
The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred:
Opportunity cost = [($18.00 - $9.00 - $1.00) × 3,000*]/6,000 = $4.00

*	Demand from outside customers	27,000
	Units required by Division B	6,000
	Total requirements	33,000
	Capacity	30,000
	Required reduction in sales to outside customers	3,000

Therefore, Transfer price ≥ $9.00 + $4.00 = $13.00.

From the viewpoint of Division A, the transfer price must be less than the cost of buying the units from the outside supplier. Therefore,
Transfer price ≤ $17.00.
Combining the two requirements, we get the following range of transfer prices:
$13.00 ≤ Transfer price ≤ $17.00.

b. Yes, the transfer should take place. From the viewpoint of the entire company, the cost of transferring the units within the company is $13.00, but the cost of purchasing them from the outside supplier is $17.00. Therefore, the company's profits increase on average by $4.00 for each of the special parts that is transferred within the company.

Chapter 13 Relevant Costs for Decision Making

True/False Questions

1. Fixed costs are sunk costs and are therefore irrelevant in decisions.

   Answer: False Level: Easy LO: 1

2. A complete income statement must be prepared as part of a differential cost analysis.

   Answer: False Level: Medium LO: 1

3. Future costs that do not differ between the alternatives in a decision are avoidable costs.

   Answer: False Level: Medium LO: 1

4. The book value of an old machine is always considered a sunk cost in a decision.

   Answer: True Level: Easy LO: 1

5. A product that does not cover its allocated share of general corporate administrative expenses should be dropped.

   Answer: False Level: Easy LO: 2

6. In a decision to drop a product, the product should be charged for rent in proportion to the space it occupies even if the space has no alternative use and the rental payment is unavoidable.

   Answer: False Level: Easy LO: 2

7. Making rather than buying a part that goes into one of the company's products would increase the company's degree of vertical integration.

   Answer: True Level: Easy LO: 3

8. In a special order situation that involves using existing idle capacity, opportunity costs are zero.

   Answer: True Level: Easy LO: 4

9. When a company has a production constraint, the product with the highest contribution margin per unit of the constrained resource should be given highest priority.

   Answer: True Level: Easy LO: 5

10. Payment of overtime to a worker in order to relax a production constraint could increase the profits of a company.

    Answer: True Level: Medium LO: 5

11. In a plant operating at capacity, every machine and person in the plant would be working at the maximum possible rate.

    Answer: False Level: Hard LO: 5

12. Lumber produced in a lumber mill results in several different products being produced from each log; such products are called joint products.

    Answer: True Level: Easy LO: 6

13. In a sell or process further decision, an avoidable fixed production cost incurred after the split-off point is relevant to the decision.

    Answer: True Level: Medium LO: 6

14. Joint processing after the split-off point is profitable if the incremental revenue from such processing exceeds the incremental processing costs.

    Answer: True Level: Easy LO: 6

15. A cost that is traceable to a segment through activity-based costing is always an avoidable cost for decision making.

    Answer: False Level: Easy LO: 1

Multiple Choice Questions

16. Hal Etoesus currently works as the fry guy at Burger Breath Drive Thru but is thinking of quitting his job to attend college full time next semester. Which of the following would be considered an opportunity cost in this decision?
    A) the cost of the textbooks
    B) the cost of the cola that Hal will consume during class
    C) Hal's lost wages at Burger Breath
    D) both A and B above

    Answer: C Level: Easy LO: 1

17. Which of the following would be relevant in the decision to sell or throw out obsolete inventory?

	Direct material cost assigned to the inventory	*Fixed overhead cost assigned to the inventory*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

    Answer: D Level: Medium LO: 1

18. Buff Corp. is considering replacing an old machine with a new machine. Which of the following items is relevant to Buff's decision? (Ignore income tax considerations.)

	Book value of old machine	*Disposal value of new machine*
A)	Yes	No
B)	No	Yes
C)	No	No
D)	Yes	Yes

    Answer: B Level: Medium LO: 1 Source: CPA, adapted

19. In a make-or-buy decision, relevant costs include:
    A) unavoidable fixed costs
    B) avoidable fixed costs
    C) fixed factory overhead costs applied to products
    D) fixed selling and administrative expenses

    Answer: B Level: Easy LO: 3 Source: CMA, adapted

20. In situations where management must decide between accepting or rejecting a one-time-only special order where there is sufficient idle capacity to fill the order, which one of the following is NOT relevant in making the decision?
    A) absorption costing unit product costs
    B) variable costs
    C) incremental costs
    D) differential costs

    Answer: A Level: Easy LO: 4 Source: CMA, adapted

21. When a multi-product factory operates at full capacity, decisions must be made about what products to emphasize. In making such decisions, products should be ranked based on:
    A) selling price per unit
    B) contribution margin per unit
    C) contribution margin per unit of the constraining resource
    D) unit sales volume

    Answer: C Level: Easy LO: 5 Source: CMA, adapted

22. Two or more products produced from a common input are called:
    A) common costs.
    B) joint products.
    C) joint costs.
    D) sunk costs.

    Answer: B Level: Easy LO: 6

23. Product X-547 is one of the joint products in a joint manufacturing process. Management is studying whether to sell X-547 at the split-off point or to process X-547 further into Xylene. The following data have been gathered:

I. Selling price of X-547
II. Variable cost of processing X-547 into Xylene.
III. The avoidable fixed costs of processing X-547 into Xylene.
IV. The selling price of Xylene.
V. The joint cost of the process from which X-547 is produced.

Which of the above items are relevant in a decision of whether to sell the X-547 as is or process it further into Xylene?
A) I, II, and IV.
B) I, II, III, and IV.
C) II, III, and V.
D) I, II, III, and V.

Answer: B Level: Medium LO: 6 Source: CMA, adapted

24. Wenig Inc. has some material that originally cost $73,500. The material has a scrap value of $45,600 as is, but if reworked at a cost of $6,600, it could be sold for $58,100. What would be the incremental effect on the company's overall profit of reworking and selling the material rather than selling it as is as scrap?
A) -$22,000
B) -$67,600
C) $51,500
D) $5,900

Answer: D Level: Medium LO: 1 Source: CIMA, adapted

25. Bosques Corporation has in stock 35,800 kilograms of material L that it bought five years ago for $5.55 per kilogram. This raw material was purchased to use in a product line that has been discontinued. Material L can be sold as is for scrap for $1.67 per kilogram. An alternative would be to use material L in one of the company's current products, Q08C, which currently requires 2 kilograms of a raw material that is available for $9.15 per kilogram. Material L can be modified at a cost of $0.78 per kilogram so that it can be used as a substitute for this material in the production of product Q08C. However, after modification, 4 kilograms of material L is required for every unit of product Q08C that is produced. Bosques Corporation has now received a request from a company that could use material L in its production process. Assuming that Bosques Corporation could use all of its stock of material L to make product Q08C or the company could sell all of its stock of the material at the current scrap price of $1.67 per kilogram, what is the minimum acceptable selling price of material L to the company that could use material L in its own production process?
    A) $5.36
    B) $3.80
    C) $2.13
    D) $1.67

    Answer: B Level: Hard LO: 1 Source: CIMA, adapted

26. Mankus Inc. is considering using stocks of an old raw material in a special project. The special project would require all 120 kilograms of the raw material that are in stock and that originally cost the company $816 in total. If the company were to buy new supplies of this raw material on the open market, it would cost $7.25 per kilogram. However, the company has no other use for this raw material and would sell it at the discounted price of $6.75 per kilogram if it were not used in the special project. The sale of the raw material would involve delivery to the purchaser at a total cost of $50.00 for all 120 kilograms. What is the relevant cost of the 120 kilograms of the raw material when deciding whether to proceed with the special project?
    A) $810
    B) $870
    C) $760
    D) $816

    Answer: C Level: Hard LO: 1 Source: CIMA, adapted

27. Narciso Corporation is preparing a bid for a special order that would require 880 liters of material R19S. The company already has 280 liters of this raw material in stock that originally cost $6.20 per liter. Material R19S is used in the company's main product and is replenished on a periodic basis. The resale value of the existing stock of the material is $5.45 per liter. New stocks of the material can be readily purchased for $6.20 per liter. What is the relevant cost of the 880 liters of the raw material when deciding how much to bid on the special order?
A) $5,006
B) $5,456
C) $4,796
D) $5,456

Answer: B Level: Hard LO: 1 Source: CIMA, adapted

28. Yehle Inc. regularly uses material Y51B and currently has in stock 460 liters of the material for which it paid $2,530 several weeks ago. If this were to be sold as is on the open market as surplus material, it would fetch $4.55 per liter. New stocks of the material can be purchased on the open market for $5.45 per liter, but it must be purchased in lots of 1,000 liters. You have been asked to determine the relevant cost of 720 liters of the material to be used in a job for a customer. The relevant cost of the 720 liters of material Y51B is:
A) $3,924
B) $5,450
C) $3,510
D) $3,276

Answer: A Level: Hard LO: 1 Source: CIMA, adapted

29. Roddey Corporation is a specialty component manufacturer with idle capacity. Management would like to use its extra capacity to generate additional profits. A potential customer has offered to buy 2,900 units of component GEE. Each unit of GEE requires 3 units of material R39 and 8 units of material I59. Data concerning these two materials follow:

Material	*Units in Stock*	*Original Cost Per Unit*	*Current Market Price Per Unit*	*Disposal Value Per Unit*
R39	340	$4.70	$4.35	$3.95
I59	23,700	$8.20	$8.05	$6.85

Material R39 is in use in many of the company's products and is routinely replenished. Material I59 is no longer used by the company in any of its normal products and existing stocks would not be replenished once they are used up.

What would be the relevant cost of the materials, in total, for purposes of determining a minimum acceptable price for the order for product GEE?
A) $224,605
B) $196,765
C) $228,204
D) $193,285

Answer: B Level: Hard LO: 1 Source: CIMA, adapted

30. Moyer Corporation is a specialty component manufacturer with idle capacity. Management would like to use its extra capacity to generate additional profits. A potential customer has offered to buy 2,300 units of component TIB. Each unit of TIB requires 9 units of material F58 and 7 units of material D66. Data concerning these two materials follow:

Material	*Units in Stock*	*Original Cost Per Unit*	*Current Market Price Per Unit*	*Disposal Value Per Unit*
F58	18,940	$4.40	$4.65	$4.35
D66	15,700	$6.10	$6.50	$4.80

Material F58 is in use in many of the company's products and is routinely replenished. Material D66 is no longer used by the company in any of its normal products and existing stocks would not be replenished once they are used up.

What would be the relevant cost of the materials, in total, for purposes of determining a minimum acceptable price for the order for product TIB?
A) $189,890
B) $174,215
C) $168,533
D) $200,905

Answer: B Level: Hard LO: 1 Source: CIMA, adapted

31. Kahn Company produces and sells 8,000 units of Product X each year. Each unit of Product X sells for $10 and has a contribution margin of $6. It is estimated that if Product X is discontinued, $50,000 of the $60,000 in fixed costs charged to Product X could be eliminated. These data indicate that if Product X is discontinued, overall company net operating income should:
A) increase by $2,000 per year
B) decrease by $2,000 per year
C) increase by $38,000 per year
D) decrease by $38,000 per year

Answer: A Level: Easy LO: 2

32. The Milham Company has two divisions - East and West. The divisions have the following revenues and expenses:

	East	*West*
Sales	$720,000	$350,000
Variable costs	370,000	240,000
Traceable fixed costs	130,000	80,000
Allocated common corporate costs	120,000	50,000
Net operating income (loss)	$100,000	$ (20,000)

Management at Milham is pondering the elimination of the West Division since it has shown an operating loss for the past several years. If the West Division were eliminated, its traceable fixed costs could be avoided. Total common corporate costs would be unaffected by this decision. Given these data, the elimination of the West Division would result in an overall company net operating income of:
A) $100,000
B) $80,000
C) $120,000
D) $50,000

Answer: D Level: Medium LO: 2

33. The following information relates to next year's projected operating results of the Aluminum Division of Wroclaw Corporation:

Contribution margin	$1,500,000
Fixed expenses	1,700,000
Net operating loss	$ (200,000)

If Aluminum Division is dropped, $1,000,000 of the above fixed costs would be eliminated. What will be the effect on Wroclaw's profit next year if Aluminum Division is dropped instead of being kept?
A) $500,000 decrease
B) $800,000 increase
C) $1,000,000 increase
D) $1,200,000 increase

Answer: A Level: Medium LO: 2

34. Teich Inc. is considering whether to continue to make a component or to buy it from an outside supplier. The company uses 15,000 of the components each year. The unit product cost of the component according to the company's absorption cost accounting system is given as follows:

Direct materials	$ 7.90
Direct labor	2.10
Variable manufacturing overhead	1.10
Fixed manufacturing overhead	4.00
Unit product cost	$15.10

Assume that direct labor is a variable cost. Of the fixed manufacturing overhead, 10% is avoidable if the component were bought from the outside supplier; the remainder is not avoidable. In addition, making the component uses 3 minutes on the machine that is the company's current constraint. If the component were bought, this machine time would be freed up for use on another product that requires 6 minutes on the constraining machine and that has a contribution margin of $8.10 per unit.

When deciding whether to make or buy the component, what cost of making the component should be compared to the price of buying the component?
A) $15.55
B) $11.50
C) $19.15
D) $15.10

Answer: A Level: Hard LO: 3 Source: CIMA, adapted

35. Jordan Company budgeted sales of 400,000 calculators at $40 per unit last year. Variable manufacturing costs were budgeted at $16 per unit, and fixed manufacturing costs at $10 per unit. A special order for 40,000 calculators at $23 each was received by Jordan in March. Jordan has sufficient plant capacity to manufacture the additional quantity without incurring any additional fixed manufacturing costs; however, the production would have to be done on an overtime basis at an estimated additional cost of $3 per calculator. Acceptance of the special order would not affect Jordan's normal sales and no selling expenses would be incurred. What would be the effect on net operating income if the special order were accepted?
A) $120,000 decrease
B) $160,000 increase
C) $240,000 decrease
D) $280,000 increase

Answer: B Level: Medium LO: 4 Source: CPA, adapted

36. Marley Company makes three products (X, Y, & Z) with the following characteristics:

	Product		
	X	*Y*	*Z*
Selling price per unit	$10	$15	$20
Variable cost per unit	$6	$10	$10
Machine hours per unit.....	2	4	10

The company has a capacity of 2,000 machine hours, but there is virtually unlimited demand for each product. In order to maximize total contribution margin, how many units of each product should the company produce?

A) 2,000 units of X, 500 units of Y, and 200 units of Z
B) 0 units of X, 0 units of Y, and 200 units of Z
C) 0 units of X, 500 units of Y, and 0 units of Z
D) 1,000 units of X, 0 units of Y, and 0 units of Z

Answer: D Level: Medium LO: 5

37. Two products, LB and NH, emerge from a joint process. Product LB has been allocated $30,800 of the total joint costs of $44,000. A total of 2,000 units of product LB are produced from the joint process. Product LB can be sold at the split-off point for $13 per unit, or it can be processed further for an additional total cost of $14,000 and then sold for $15 per unit. If product LB is processed further and sold, what would be the effect on the overall profit of the company compared with sale in its unprocessed form directly after the split-off point?

A) $16,000 more profit
B) $20,800 more profit
C) $40,800 less profit
D) $10,000 less profit

Answer: D Level: Medium LO: 6 Source: CIMA, adapted

Use the following to answer questions 38-39:

Jebb's Lettuce Stand currently sells 60,000 heads of lettuce each year for $1.00 per head. Jebb is thinking of expanding operations and serving the customer better by purchasing a "slice and dice" machine that will cut up each head of lettuce into bite-size pieces that can be used for salads. Jebb expects he will then be able to sell his lettuce for $1.70 per head. Jebb has prepared the following analysis for each option based on sales of 60,000 heads of lettuce:

Selling Unsliced Lettuce:

	Per Head	*Total*
Variable costs	$0.25	$15,000
Fixed costs	0.30	18,000
Total	$0.55	$33,000

Selling Sliced Lettuce:

	Per Head	*Total*
Variable costs	$0.30	$18,000
Fixed costs	0.90	54,000
Total	$1.20	$72,000

38. Based on the information above, what will be Jebb's increase or decrease in profit for the year if he chooses to start slicing up the lettuce instead of selling it whole?
    A) $3,000 increase
    B) $3,000 decrease
    C) $12,000 decrease
    D) $30,000 increase

    Answer: A Level: Medium LO: 1

39. Assume that Jebb is currently selling only 50,000 heads of lettuce per year instead of 60,000. Under this scenario, what will be Jebb's increase or decrease in profit for the year if he chooses to start slicing up the lettuce instead of selling it whole?
    A) $2,000 increase
    B) $2,500 decrease
    C) $3,000 increase
    D) $3,500 decrease

    Answer: D Level: Hard LO: 1

Use the following to answer questions 40-41:

Bayshore Company manufactures and sells Product K. Results for last year are as follows:

Sales (10,000 units at $150 each).....		$1,500,000
Less expenses:		
Variable production costs.....	$900,000	
Sales commissions (15% of sales)	225,000	
Salary of product line manager	190,000	
Traceable fixed advertising expense	175,000	
Fixed manufacturing overhead.....	160,000	
Total expenses.....		1,650,000
Net operating loss.....		$ (150,000)

Bayshore is reexamining all of its product lines and is trying to decide whether to discontinue Product K. Dropping the product would have no effect on the total fixed manufacturing overhead incurred by the company.

40. Assume that dropping Product K will have no effect on the sale of other product lines. If the company drops Product K, the change in annual net operating income due to this decision will be a:
    A) $10,000 decrease
    B) $150,000 increase
    C) $160,000 decrease
    D) $310,000 decrease

    Answer: A Level: Medium LO: 2

41. Assume that dropping Product K would result in a $15,000 increase in the contribution margin of other product lines. If Bayshore chooses to drop Product K, then the change in net operating income next year due to this action will be a:
    A) $150,000 increase
    B) $150,000 decrease
    C) $5,000 increase
    D) $140,000 increase

    Answer: C Level: Medium LO: 2

Use the following to answer questions 42-43:

The Flint Fan Company is considering the addition of a new model fan, the F-27, to its current product lines. The expected cost and revenue data for the F-27 fan are as follows:

Annual sales	4,000 units
Unit selling price	$58
Unit variable costs:	
Production	$34
Selling	$4
Avoidable fixed costs per year:	
Production	$20,000
Selling	$30,000

If the F-27 model is added as a new product line, it is expected that the contribution margin of other product lines at Flint will drop by $7,000 per year.

42. If the F-27 product line is added next year, the change in operating income should be:
    A) $30,000 increase
    B) $5,000 decrease
    C) $23,000 increase
    D) $15,000 increase

    Answer: C Level: Medium LO: 2

43. What is the lowest unit selling price that could be charged for the F-27 model and still make it economically desirable for Flint to add the new product line?
    A) $52.25
    B) $50.50
    C) $55.75
    D) $49.00

    Answer: A Level: Hard LO: 2

Use the following to answer questions 44-45:

Key Company is considering the addition of a new product to its current product lines. The expected cost and revenue data for the new product are as follows:

Annual sales	2,500 units
Selling price per unit	$304
Variable costs per unit:	
Production	$125
Selling	$49
Avoidable fixed costs per year:	
Production	$50,000
Selling	$75,000
Allocated common corporate costs per year	$55,000

If the new product is added, the combined contribution margin of the other, existing product lines is expected to drop $65,000 per year. Total common corporate costs would be unaffected by the decision of whether to add the new product.

44. If the new product line is added next year, the increase in net operating income resulting from this decision would be:
    A) $325,000
    B) $200,000
    C) $145,000
    D) $135,000

    Answer: D Level: Medium LO: 2

45. What is the lowest selling price per unit that could be charged for the new product line and still make it economically desirable to add the new product line?
    A) $246
    B) $250
    C) $232
    D) $282

    Answer: B Level: Hard LO: 2

Use the following to answer questions 46-47:

The Talbot Company makes wheels that it uses in the production of bicycles. Talbot's costs to produce 100,000 wheels annually are:

Direct materials	$30,000
Direct labor.....	$50,000
Variable overhead	$20,000
Fixed overhead.....	$70,000

An outside supplier has offered to sell Talbot similar wheels for $1.25 per wheel. If the wheels are purchased from the outside supplier, $15,000 of annual fixed overhead could be avoided and the facilities now being used could be rented to another company for $45,000 per year.

46. If Talbot chooses to buy the wheel from the outside supplier, then the change in annual net operating income due to accepting the offer is a:
    A) $35,000 increase
    B) $10,000 decrease
    C) $45,000 increase
    D) $70,000 increase

    Answer: A Level: Medium LO: 3

47. What is the highest price that Talbot could pay the outside supplier for the wheel and still be economically indifferent between making or buying the wheels?
    A) $1.70
    B) $1.60
    C) $1.55
    D) $1.15

    Answer: B Level: Hard LO: 3

Use the following to answer questions 48-49:

Melbourne Company has traditionally made a subcomponent of its major product. Annual production of 30,000 subcomponents results in the following costs:

Direct materials	$250,000
Direct labor.....	$200,000
Variable overhead	$190,000
Fixed overhead.....	$120,000

Melbourne has received an offer from an outside supplier who is willing to provide the 30,000 units of the subcomponent each year at a price of $28 per unit. Melbourne knows that the facilities now being used to manufacture the subcomponent could be rented to another company for $80,000 per year if the subcomponent were purchased from the outside supplier. Otherwise, there would be no effect of this decision on the total fixed overhead of the company.

48. If Melbourne decides to purchase the subcomponent from the outside supplier, what would be the impact on the company's net operating income for the year?
    A) $120,000 higher
    B) $20,000 higher
    C) $120,000 lower
    D) $20,000 lower

    Answer: C Level: Medium LO: 3

49. At what price per unit charged by the outside supplier would Melbourne be economically indifferent between making the subcomponent or buying it from outside?
    A) $29
    B) $25
    C) $21
    D) $24

    Answer: D Level: Hard LO: 3

Use the following to answer questions 50-51:

Regis Company makes the plugs it uses in one of its products at a cost of $36 per unit. This cost includes $8 of fixed overhead. Regis needs 30,000 of these plugs annually, and Orlan Company has offered to sell them to Regis at $33 per unit. If Regis decides to purchase the plugs, $60,000 of the annual fixed overhead will be eliminated, and the company may be able to rent the facility previously used for manufacturing the plugs.

50. If Regis Company purchases the plugs but does not rent the unused facility, the company would:
    A) save $3.00 per unit.
    B) lose $6.00 per unit.
    C) save $6.00 per unit.
    D) lose $3.00 per unit.

    Answer: D Level: Medium LO: 3 Source: CMA, adapted

51. If the plugs are purchased and the facility rented, Regis Company wishes to realize $100,000 in savings annually. To achieve this goal, the minimum annual rent on the facility must be:
    A) $10,000
    B) $40,000
    C) $70,000
    D) $190,000

    Answer: D Level: Hard LO: 3 Source: CMA, adapted

Use the following to answer questions 52-53:

Ahringer Company makes 50,000 units per year of a part it uses in the products it manufactures. The unit product cost of this part is computed as follows:

Direct materials	$19.10
Direct labor	21.70
Variable manufacturing overhead	2.10
Fixed manufacturing overhead	14.20
Unit product cost	$57.10

An outside supplier has offered to sell the company all of these parts it needs for $50.10 a unit. If the company accepts this offer, the facilities now being used to make the part could be used to make more units of a product that is in high demand. The additional contribution margin on this other product would be $135,000 per year.

If the part were purchased from the outside supplier, all of the direct labor cost of the part would be avoided. However, $9.30 of the fixed manufacturing overhead cost being applied to the part would continue even if the part were purchased from the outside supplier. This fixed manufacturing overhead cost would be applied to the company's remaining products.

52. How much of the unit product cost of $57.10 is relevant in the decision of whether to make or buy the part?
    A) $57.10
    B) $21.70
    C) $47.80
    D) $42.90

    Answer: C Level: Easy LO: 3

53. What is the net total dollar advantage (disadvantage) of purchasing the part rather than making it?
    A) $350,000
    B) $135,000
    C) $(115,000)
    D) $20,000

    Answer: D Level: Medium LO: 3

Use the following to answer question 54:

Regis Company makes the plugs it uses in one of its products at a cost of $36 per unit. This cost includes $8 of fixed overhead. Regis needs 30,000 of these plugs annually, and Orlan Company has offered to sell them to Regis at $33 per unit. If Regis decides to purchase the plugs, $60,000 of the annual fixed overhead will be eliminated, and the company may be able to rent the facility previously used for manufacturing the plugs.

54. What is the maximum amount the company should be willing to pay an outside supplier per unit for the part if the supplier commits to supplying all 50,000 units required each year?
    A) $57.10
    B) $50.50
    C) $59.80
    D) $2.70

    Answer: B Level: Hard LO: 3

Use the following to answer questions 55-57:

Dockwiller Inc. manufactures industrial components. One of its products, which is used in the construction of industrial air conditioners, is known as D53. Data concerning this product are given below:

	Per Unit Data
Selling price	$150
Direct materials	$26
Direct labor	$3
Variable manufacturing overhead	$1
Fixed manufacturing overhead	$17
Variable selling expense	$2
Fixed selling and administrative expense	$18

The above per unit data are based on annual production of 8,000 units of the component. Direct labor can be considered to be a variable cost.

55. The company has received a special, one-time-only order for 500 units of component D53. There would be no variable selling expense on this special order and the total fixed manufacturing overhead and fixed selling and administrative expenses of the company would not be affected by the order. Assuming that Dockwiller has excess capacity and can fill the order without cutting back on the production of any product, what is the minimum price per unit on the special order below which the company should not go?
    A) $67
    B) $30
    C) $150
    D) $47

    Answer: B Level: Medium LO: 4 Source: CMA, adapted

56. The company has received a special, one-time-only order for 300 units of component D53. There would be no variable selling expense on this special order and the total fixed manufacturing overhead and fixed selling and administrative expenses of the company would not be affected by the order. However, assume that Dockwiller has no excess capacity and this special order would require 30 minutes of the constraining resource, which could be used instead to produce products with a total contribution margin of $1,800. What is the minimum price per unit on the special order below which the company should not go?
    A) $73
    B) $36
    C) $53
    D) $6

    Answer: B Level: Hard LO: 4,5 Source: CMA, adapted

57. Refer to the original data in the problem. What is the current contribution margin per unit for component D53 based on its selling price of $150 and its annual production of 8,000 units?
    A) $83
    B) $118
    C) $32
    D) $120

    Answer: B Level: Easy LO: 4 Source: CMA, adapted

Use the following to answer questions 58-59:

The following are the Jensen Company's unit costs of making and selling an item at a volume of 1,000 units per month (which represents the company's capacity):

Manufacturing:	
Direct materials	$1.00
Direct labor	$2.00
Variable overhead	$0.50
Fixed overhead	$0.40
Selling and Administrative:	
Variable	$2.00
Fixed	$0.80

Present sales amount to 700 units per month. An order has been received from a customer in a foreign market for 100 units. The order would not affect current sales. Jensen's total fixed costs, both manufacturing and selling and administrative, are constant within the relevant range between 700 units and 1,000 units. The variable selling and administrative expenses would have to be incurred on this special order as well as for all other sales.

58. How much will the company's profits be increased or (decreased) if it prices the 100 units at $7 each?
    A) $(30)
    B) $150
    C) $0
    D) $310

    Answer: B Level: Medium LO: 4

59. Assume the company has 50 units left over from last year which have small defects and which will have to be sold at a reduced price for scrap. The sale of these defective units will have no effect on the company's other sales. What cost is relevant as a guide for setting a minimum price?
    A) $5.50
    B) $5.90
    C) $2.00
    D) $3.50

    Answer: C Level: Hard LO: 4

Use the following to answer questions 60-61:

The Molis Company has the capacity to produce 15,000 haks each month. Current regular production and sales are 10,000 haks per month at a selling price of $15 each. Based on this level of activity, the following unit costs are incurred:

Direct materials	$5.00
Direct labor	$3.00
Variable manufacturing overhead	$0.75
Fixed manufacturing overhead	$1.50
Variable selling expense	$0.25
Fixed administrative expense	$1.00

The fixed costs, both manufacturing and administrative, are constant in total within the relevant range of 10,000 to 15,000 haks per month.

The Molis Company has received a special order from a customer who wants to pay a reduced price of $10 per hak. There would be no selling expense in connection with this special order. And, this order would have no effect on the company's other sales.

60. Suppose the special order is for 4,000 haks this month. If this offer is accepted by Molis, the company's operating income for the month will:
    A) increase by $6,000
    B) decrease by $6,000
    C) increase by $5,000
    D) decrease by $5,000

    Answer: C Level: Medium LO: 4

61. Suppose the special order is for 6,000 haks this month and thus some regular sales would have to be given up. If this offer is accepted by Molis, the company's operating income for the month will:
    A) increase by $6,000
    B) increase by $7,500
    C) increase by $5,000
    D) increase by $1,500

    Answer: D Level: Hard LO: 4

Use the following to answer questions 62-64:

Elferts Company produces a single product. The cost of producing and selling a single unit of this product at the company's normal activity level of 70,000 units per month is as follows:

Direct materials	$41.40
Direct labor	$7.10
Variable manufacturing overhead	$2.40
Fixed manufacturing overhead	$18.30
Variable selling & administrative expense	$1.00
Fixed selling & administrative expense	$6.10

The normal selling price of the product is $85.80 per unit.

An order has been received from an overseas customer for 4,000 units to be delivered this month at a special discounted price. This order would have no effect on the company's normal sales and would not change the total amount of the company's fixed costs. The variable selling and administrative expense would be $0.60 less per unit on this order than on normal sales.

Direct labor is a variable cost in this company.

62. Suppose there is ample idle capacity to produce the units required by the overseas customer and the special discounted price on the special order is $80.60 per unit. By how much would this special order increase (decrease) the company's net operating income for the month?
A) $44,000
B) $(18,400)
C) $117,200
D) $17,200

Answer: C Level: Medium LO: 4

63. Suppose the company is already operating at capacity when the special order is received from the overseas customer. What would be the opportunity cost of each unit delivered to the overseas customer?
A) $9.50
B) $10.10
C) $5.20
D) $33.90

Answer: D Level: Hard LO: 4

64. Suppose there is not enough idle capacity to produce all of the units for the overseas customer and accepting the special order would require cutting back on production of 100 units for regular customers. The minimum acceptable price per unit for the special order is closest to:
A) $69.20
B) $76.30
C) $85.80
D) $52.15

Answer: D Level: Hard LO: 4

Use the following to answer questions 65-67:

The Melrose Company produces a single product, Product C. Melrose has the capacity to produce 70,000 units of Product C each year. If Melrose produces at capacity, the per unit costs to produce and sell one unit of Product C are as follows:

Direct materials	$20
Direct labor	$17
Variable manufacturing overhead	$13
Fixed manufacturing overhead	$14
Variable selling expense	$12
Fixed selling expense	$8

The regular selling price of one unit of Product C is $100. A special order has been received by Melrose from Moore Company to purchase 7,000 units of Product C during the upcoming year. If this special order is accepted, the variable selling expense will be reduced by 75%. Total fixed manufacturing overhead and fixed selling expenses would be unaffected except that Melrose will need to purchase a specialized machine to engrave the Moore name on each unit of product C in the special order. The machine will cost $10,500 and will have no use after the special order is filled.

65. Assume that Melrose expects to sell 60,000 units of Product C to regular customers next year. At what selling price for the 7,000 units would Melrose be economically indifferent between accepting and rejecting the special order from Moore?
    A) $53.00
    B) $54.50
    C) $75.00
    D) $76.50

    Answer: B Level: Hard LO: 4

66. Assume Melrose expects to sell 60,000 units of Product C to regular customers next year. If Moore company offers to buy the special units at $90 per unit, the effect of accepting the special order on Melrose's net operating income for next year will be:
    A) $42,000 increase
    B) $54,000 decrease
    C) $105,000 increase
    D) $248,500 increase

    Answer: D Level: Hard LO: 4

67. Suppose Melrose can sell 68,000 units of Product C to regular customers next year. If Moore Company offers to buy the special order units at $95 per unit, the effect of accepting the special order for 7,000 units on Melrose's net operating income for next year will be a:
    A) $93,500 increase
    B) $104,000 increase
    C) $114,500 increase
    D) $294,000 increase

    Answer: A Level: Hard LO: 4

Use the following to answer questions 68-71:

Broyles Company makes four products in a single facility. These products have the following unit product costs:

	Product			
	A	*B*	*C*	*D*
Direct materials	$10.70	$ 5.40	$ 5.10	$ 7.20
Direct labor	19.10	21.40	29.00	34.40
Variable manufacturing overhead	1.20	1.50	1.80	1.60
Fixed manufacturing overhead	22.40	16.00	15.00	17.60
Unit product cost	$53.40	$44.30	$50.90	$60.80

Additional data concerning these products are listed below.

	Product			
	A	*B*	*C*	*D*
Grinding minutes per unit	2.20	1.20	1.70	1.80
Selling price per unit	$65.40	$58.50	$70.70	$76.20
Variable selling cost per unit	$3.60	$3.80	$2.00	$3.40
Monthly demand in units	1,000	4,000	1,000	4,000

The grinding machines are potentially the constraint in the production facility. A total of 14,400 minutes are available per month on these machines.

Direct labor is a variable cost in this company.

68. How many minutes of grinding machine time would be required to satisfy demand for all four products?
    A) 13,400
    B) 15,900
    C) 10,000
    D) 14,400

    Answer: B Level: Easy LO: 5

69. Which product makes the LEAST profitable use of the grinding machines?
    A) Product A
    B) Product B
    C) Product C
    D) Product D

    Answer: A Level: Hard LO: 5

70. Which product makes the MOST profitable use of the grinding machines?
    A) Product A
    B) Product B
    C) Product C
    D) Product D

    Answer: B Level: Hard LO: 5

71. Up to how much should the company be willing to pay for one additional hour of grinding machine time if the company has made the best use of the existing grinding machine capacity? (Round off to the nearest whole cent.)
    A) $26.40
    B) $12.00
    C) $14.00
    D) $0.00

    Answer: C Level: Hard LO: 5

Use the following to answer questions 72-75:

Craves Company makes four products in a single facility. Data concerning these products appear below:

	Product			
	A	*B*	*C*	*D*
Selling price per unit	$28.20	$26.60	$20.40	$24.70
Variable manufacturing cost per unit	$11.40	$7.70	$6.30	$9.30
Variable selling cost per unit	$3.40	$1.50	$3.50	$1.80
Milling machine minutes per unit	2.60	1.40	0.70	0.90
Monthly demand in units	1,000	3,000	4,000	1,000

The milling machines are potentially the constraint in the production facility. A total of 10,400 minutes are available per month on these machines.

72. How many minutes of milling machine time would be required to satisfy demand for all four products?
    A) 9,000
    B) 10,500
    C) 10,400
    D) 9,900

    Answer: B Level: Easy LO: 5

73. Which product makes the LEAST profitable use of the milling machines?
    A) Product A
    B) Product B
    C) Product C
    D) Product D

    Answer: A Level: Medium LO: 5

74. Which product makes the MOST profitable use of the milling machines?
    A) Product A
    B) Product B
    C) Product C
    D) Product D

    Answer: C Level: Medium LO: 5

75. Up to how much should the company be willing to pay for one additional hour of milling machine time if the company has made the best use of the existing milling machine capacity? (Round off to the nearest whole cent.)
    A) $10.60
    B) $0.00
    C) $5.15
    D) $17.40

    Answer: C Level: Medium LO: 5

Use the following to answer questions 76-77:

The Madison Company produces three products with the following costs and selling prices:

	Product		
	A	*B*	*C*
Selling price per unit	$15	$20	$20
Variable cost per unit	$8	$10	$12
Direct labor hours per unit	1	1.5	2
Machine hours per unit.....	3.5	2	2.5

76. If Madison has a limit of 10,000 direct labor hours but no limit on machine hours, then the three products should be produced in the order:
    A) A, B, C
    B) B, C, A
    C) C, A, B
    D) A, C, B

    Answer: A Level: Medium LO: 5

77. If Madison has a limit of 15,000 machine hours but no limit on direct labor hours, then the three products should be produced in the order:
    A) A, B, C
    B) B, C, A
    C) A, C, B
    D) C, A, B

    Answer: B Level: Medium LO: 5

Use the following to answer questions 78-79:

The Wester Company produces three products with the following costs and selling prices:

	Product		
	A	*B*	*C*
Selling price per unit	$21	$12	$32
Variable cost per unit	$11	$7	$18
Fixed cost per unit.....	$5	$3	$9
Direct labor hours per unit	0.4	0.1	0.7
Machine hours per unit.....	0.2	0.5	0.2

The company has insufficient capacity to fulfill all of the demand for these three products.

78. If direct labor hours are the constraint, then the three products should be produced in the order:
    A) A, B, C
    B) B, A, C
    C) C, A, B
    D) A, C, B

    Answer: B Level: Hard LO: 5

79. If machine hours are the constraint, then the three products should be produced in the order:
    A) A, B, C
    B) B, C, A
    C) A, C, B
    D) C, A, B

    Answer: D Level: Medium LO: 5

Use the following to answer questions 80-81:

The Carter Company makes products A and B in a joint process from a single input, R. During a typical production run, 50,000 units of R yield 20,000 units of A and 30,000 units of B at the split-off point. Joint production costs total $90,000 per production run. The unit selling price for A is $4 and for B is $3.80 at the split-off point. However, B can be processed further at a total cost of $60,000 and then sold for $7.00 per unit.

80. In a decision between selling B at the split-off point or processing B further, which of the following items is not relevant:
    A) the $60,000 cost to process B beyond the split-off point
    B) the $3.80 unit sales price of B at the split-off point
    C) the portion of the $90,000 joint production cost allocated to B
    D) the $7 unit selling price for B after further processing

    Answer: C Level: Medium LO: 6

81. If product B is processed beyond the split-off point, the change in operating income from a production run (as compared to selling B at the split-off point) would be:
    A) $36,000 increase
    B) $96,000 increase
    C) $42,000 decrease
    D) $10,000 decrease

    Answer: A Level: Medium LO: 6

Use the following to answer questions 82-83:

Paulsen Company makes two products, W and P, in a joint process. At the split-off point, 50,000 units of W and 60,000 units of P are available each month. Monthly joint production costs are $290,000. Product W can be sold at the split-off point for $5.60 per unit. Product P either can be sold at the split-off point for $4.75 per unit or it can be further processed and sold for $7.20 per unit. If P is processed further, additional processing costs of $3.10 per unit will be incurred.

82. If P is processed further and then sold, rather than being sold at the split-off point, the change in monthly net operating income would be a:
    A) $147,000 decrease
    B) $147,000 increase
    C) $39,000 increase
    D) $39,000 decrease

    Answer: D Level: Medium LO: 6

83. What would the selling price per unit of Product P need to be after processing in order for Paulsen Company to be economically indifferent between selling P at the split-off point or processing P further?
    A) $7.85
    B) $8.58
    C) $9.49
    D) $11.68

    Answer: A Level: Medium LO: 6

Use the following to answer questions 84-86:

Dockham Company makes two products from a common input. Joint processing costs up to the split-off point total $33,600 a year. The company allocates these costs to the joint products on the basis of their total sales values at the split-off point. Each product may be sold at the split-off point or processed further. Data concerning these products appear below:

	Product X	*Product Y*	*Total*
Allocated joint processing costs.....	$14,000	$19,600	$33,600
Sales value at split-off point.....	$20,000	$28,000	$48,000
Costs of further processing.....	$26,300	$24,500	$50,800
Sales value after further processing	$50,200	$48,600	$98,800

84. What is the net monetary advantage (disadvantage) of processing Product X beyond the split-off point?
    A) $23,900
    B) $29,900
    C) $3,900
    D) $9,900

    Answer: C Level: Medium LO: 6

85. What is the net monetary advantage (disadvantage) of processing Product Y beyond the split-off point?
    A) $(3,900)
    B) $24,100
    C) $32,500
    D) $4,500

    Answer: A Level: Medium LO: 6

86. What is the minimum amount the company should accept for Product X if it is to be sold at the split-off point?
    A) $23,900
    B) $40,300
    C) $50,200
    D) $14,000

    Answer: A Level: Hard LO: 6

Essay Questions

87. Lakeshore Tours Inc., operates a large number of tours throughout the United States. A study has indicated that some of the tours are not profitable, and consideration is being given to dropping these tours in order to improve the company's overall operating performance. One such tour is a two-day Battlefields of the French and Indian Wars bus tour. An income statement from one of these tours is given below:

Ticket revenue			
(100 seats × 45% occupancy × $80 ticket price)...		$3,600	100%
Less variable expenses ($24 per person).....		1,080	30%
Contribution margin		2,520	70%
Less fixed tour expenses:			
Tour promotion	$620		
Salary of bus driver	400		
Fee, tour guide.....	825		
Fuel for bus.....	100		
Depreciation of bus	400		
Liability insurance, bus	250		
Overnight parking fee, bus.....	50		
Room and meals, bus driver and tour guide.....	75		
Bus maintenance and preparation	325		
Total fixed tour expenses		3,045	
Net operating loss.....		$ (525)	

Dropping this tour would not affect the number of buses in the company's fleet or the number of bus drivers on the company's payroll. Buses do not wear out through use; rather, they eventually become obsolete. Bus drivers are paid fixed annual salaries; tour guides are paid for each tour conducted. The “Bus maintenance and preparation” cost above is an allocation of the salaries of mechanics and other service personnel who are responsible for keeping the company's fleet of buses in good operating condition. There would be no change in the number of mechanics and other service personnel as a result of dropping this tour. The liability insurance depends upon the number of buses in the company's fleet and not upon how much they are used.

Required:

a. Prepare an analysis showing what the impact will be on company profits if this tour is discontinued.
b. The company's tour director has been criticized because only about 50% of the seats on the company's tours are being filled as compared to an average of 60% for the industry. The tour director has explained that the company's average seat occupancy could be improved considerably by eliminating about 10% of the tours, but that doing so would reduce profits. Do you agree with the tour director's conclusion? Explain your response.

Level: Hard LO: 2

Answer:

a. Contribution margin lost if the tour is discontinued.....		$(2,520)
Less tour costs that can be avoided if the tour is discontinued:		
Tour promotion	$620	
Fee, tour guide.....	825	
Fuel for bus.....	100	
Overnight parking fee, bus	50	
Room and meals, bus driver and tour guide.....	75	1,670
Net decrease in profits if the tour is discontinued		$ 850

b. The elimination of tours with occupancy rates lower than the industry average would improve the overall average seat occupancy for the company as a whole. This action could reduce company profits in two ways. First, the tours that are eliminated could have a contribution margin that is higher than the avoidable costs of the tour itself. This is the case with the tour described in part 1 above. Eliminating these tours would reduce the company's total contribution margin more than it would reduce total costs resulting in a decline in profits. Second, these tours might be acting as “magnets' in that they may be drawing tourists to other, more profitable tours being offered by the company.

88. Boa Mining Company currently is operating at less than 50% of practical capacity. The management of the company expects sales to drop below the present level of 10,000 tons of ore per month very soon. The sales price per ton is $3 and the variable cost per ton is $2. Fixed costs per month total $10,000.

Management is concerned that a further drop in sales volume will generate a loss and accordingly is considering temporarily suspending operations until demand in the metals markets rebounds and prices once again rise. Management has implemented a cost reduction program over the past year, but at this point suspension of operations appears to be the only viable alternative. Management estimates that suspension of operations would reduce fixed costs from $10,000 to $4,000 per month.

Required:

a. Why does management believe that the fixed costs will persist at $4,000 even though the mine is temporarily closed?
b. At what sales volume per month will the company be indifferent between continuing to operate the mine and closing it?

Level: Medium LO: 2

Answer:

a. Some nonvariable costs will continue to be incurred despite the temporary closing of the mine. Management is probably reluctant to discharge key employees since these employees will seek employment elsewhere and replacing them could be quite costly. A skeleton staff would need to be maintained for certain administrative and maintenance functions. Taxes and insurance would continue to be paid during the shut down period.

b. Suspension of operations would be desirable when sales volume drops below 6,000 tons as shown below:

Fixed costs if plant continues to operate	$10,000
Fixed costs if plant is shut down	4,000
Fixed costs to be covered if plant is operated	$ 6,000

Each unit contributes $1.00 per unit towards fixed costs:

Selling price per ton	$3.00
Variable cost per ton.....	2.00
Contribution margin	$1.00

Sales volume necessary to recover $6,000 of fixed costs:
$6,000 ÷ $1.00 = 6,000 tons

89. Fothergill Company makes 40,000 units per year of a part it uses in the products it manufactures. The unit product cost of this part is computed as follows:

Direct materials	$23.40
Direct labor	22.30
Variable manufacturing overhead	1.40
Fixed manufacturing overhead	24.60
Unit product cost	$71.70

An outside supplier has offered to sell the company all of these parts it needs for $59.20 a unit. If the company accepts this offer, the facilities now being used to make the part could be used to make more units of a product that is in high demand. The additional contribution margin on this other product would be $352,000 per year.

If the part were purchased from the outside supplier, all of the direct labor cost of the part would be avoided. However, $21.90 of the fixed manufacturing overhead cost being applied to the part would continue even if the part were purchased from the outside supplier. This fixed manufacturing overhead cost would be applied to the company's remaining products.

Required:

a. How much of the unit product cost of $71.70 is relevant in the decision of whether to make or buy the part?
b. What is the net total dollar advantage (disadvantage) of purchasing the part rather than making it?
c. What is the maximum amount the company should be willing to pay an outside supplier per unit for the part if the supplier commits to supplying all 40,000 units required each year?

Level: Hard LO: 3

Answer:

a. Relevant cost per unit:

Direct materials	$23.40
Direct labor	22.30
Variable manufacturing overhead	1.40
Fixed manufacturing overhead	2.70
Relevant manufacturing cost	$49.80

b. Net advantage (disadvantage):

Manufacturing cost savings	$1,992,000
Additional contribution margin	352,000
Cost of purchasing the part	(2,368,000)
Net advantage (disadvantage)	$ (24,000)

c. Maximum acceptable purchase price:

Manufacturing cost savings	$1,992,000
Additional contribution margin	352,000
Total benefit	$2,344,000
Number of units	40,000
Benefit per unit	$58.60

90. Bulan Inc. makes a range of products. The company's predetermined overhead rate is $20 per direct labor-hour, which was calculated using the following budgeted data:

Variable manufacturing overhead	$140,000
Fixed manufacturing overhead	$560,000
Direct labor-hours	35,000

Component T6 is used in one of the company's products. The unit product cost of the component according to the company's cost accounting system is determined as follows:

Direct materials	$ 45.00
Direct labor	32.00
Manufacturing overhead applied	40.00
Unit product cost	$117.00

An outside supplier has offered to supply component T6 for $101 each. The outside supplier is known for quality and reliability. Assume that direct labor is a variable cost, variable manufacturing overhead is really driven by direct labor-hours, and total fixed manufacturing overhead would not be affected by this decision. Bulan chronically has idle capacity.

Required:
Is the offer from the outside supplier financially attractive? Why?

Level: Hard LO: 3 Source: CIMA, adapted

Answer:

Direct materials, direct labor, and variable manufacturing overhead are relevant in this decision. Fixed manufacturing overhead is not relevant since it would not be affected by the decision. The variable portion of the manufacturing overhead rate is computed as follows:

Variable manufacturing overhead	$140,000
÷ Direct labor-hours	35,000
= Variable portion of the predetermined overhead rate	$4.00

The direct-labor hours per unit for the special order can be determined as follows:

Manufacturing overhead applied	$40.00
÷ Predetermined overhead rate	$20.00
= Direct labor-hours	2.00

Consequently, the variable manufacturing overhead for the special order would be:

Variable portion of the predetermined overhead rate	$4.00
× Direct labor-hours	2.00
= Variable manufacturing overhead	$8.00

Putting this all together:

Direct materials	$45.00
Direct labor	32.00
Variable manufacturing overhead	8.00
Total variable cost	$85.00

Since the outside supplier has offered to sell the component for $101.00 each, but it only costs the company $85.00 to make the component internally, this is not a financially attractive offer.

91. Jiambalvo Company produces a single product. The cost of producing and selling a single unit of this product at the company's normal activity level of 40,000 units per month is as follows:

Direct materials	$38.80
Direct labor	$9.70
Variable manufacturing overhead	$2.30
Fixed manufacturing overhead	$18.10
Variable selling & administrative expense	$1.70
Fixed selling & administrative expense	$8.80

The normal selling price of the product is $81.10 per unit.

An order has been received from an overseas customer for 3,000 units to be delivered this month at a special discounted price. This order would have no effect on the company's normal sales and would not change the total amount of the company's fixed costs. The variable selling and administrative expense would be $0.20 less per unit on this order than on normal sales.

Direct labor is a variable cost in this company.

Required:

a. Suppose the company has ample idle capacity to produce the units required by the overseas customer and the special discounted price on the special order is $75.30 per unit. By how much would this special order increase (decrease) the company's net operating income for the month?
b. Suppose the company is already operating at capacity when the special order is received from the overseas customer. What would be the opportunity cost of each unit delivered to the overseas customer?
c. Suppose the company does not have enough idle capacity to produce all of the units for the overseas customer and accepting the special order would require cutting back on production of 1,000 units for regular customers. What would be the minimum acceptable price per unit for the special order?

Level: Hard LO: 4

Answer:

a. Variable cost per unit on normal sales:

Direct materials	$38.80
Direct labor	9.70
Variable manufacturing overhead	2.30
Variable selling & administrative expense	1.70
Variable cost per unit on normal sales	$52.50

Variable cost per unit on special order:

Normal variable cost per unit	$52.50
Reduction in variable selling & admin.	0.20
Variable cost per unit on special order	$52.30

Selling price for special order	$ 75.30
Variable cost per unit on special order	52.30
Unit contribution margin on special order	23.00
Number of units in special order	3,000
Increase (decrease) in net operating income	$69,000

b. The opportunity cost is just the contribution margin on normal sales:

Normal selling price per unit	$81.10
Variable cost per unit on normal sales	52.50
Unit contribution margin on normal sales	$28.60

c. Minimum acceptable price:

Unit contribution margin on normal sales	$28.60
Displaced normal sales	1,000
Lost contribution margin displaced sales	$ 28,600
Total variable cost on special order	156,900
	$185,500
Number of units in special order	3,000
Minimum acceptable price on special order	$61.83

92. Pilgrim Corporation makes a range of products. The company's predetermined overhead rate is $23 per direct labor-hour, which was calculated using the following budgeted data:

Variable manufacturing overhead	$200,000
Fixed manufacturing overhead	$375,000
Direct labor-hours	25,000

Management is considering a special order for 800 units of product N89E at $69 each. The normal selling price of product N89E is $88 and the unit product cost is determined as follows:

Direct materials	$28.00
Direct labor	22.50
Manufacturing overhead applied	34.50
Unit product cost	$85.00

If the special order were accepted, normal sales of this and other products would not be affected. The company has ample excess capacity to produce the additional units. Assume that direct labor is a variable cost, variable manufacturing overhead is really driven by direct labor-hours, and total fixed manufacturing overhead would not be affected by the special order.

Required:
If the special order were accepted, what would be the impact on the company's overall profit?

Level: Hard LO: 4 Source: CIMA, adapted

Answer:

Direct materials, direct labor, and variable manufacturing overhead are relevant in this decision. Fixed manufacturing overhead is not relevant since it would not be affected by the decision. The variable portion of the manufacturing overhead rate is computed as follows:

Variable manufacturing overhead	$200,000
÷ Direct labor-hours	25,000
= Variable portion of the predetermined overhead rate	$8.00

The direct-labor hours per unit for the special order can be determined as follows:

Manufacturing overhead applied	$34.50
÷ Predetermined overhead rate	$23.00
= Direct labor-hours	1.50

Consequently, the variable manufacturing overhead for the special order would be:

Variable portion of the predetermined overhead rate	$8.00
× Direct labor-hours	1.50
= Variable manufacturing overhead	$12.00

Putting this all together:

Special order price		$69.00
Variable costs:		
Direct materials	$28.00	
Direct labor	22.50	
Variable manufacturing overhead	12.00	
Total variable cost		62.50
Contribution margin		$ 6.50
× Units ordered		800
= Total increase in profit from the special order		$5,200

93. Adamyan Co. manufactures and sells medals for winners of athletic and other events. Its manufacturing plant has the capacity to produce 15,000 medals each month; current monthly production is 12,750 medals. The company normally charges $120 per medal. Cost data for the current level of production are shown below:

Variable costs:	
Direct materials	$624,750
Direct labor	$306,000
Selling and administrative	$15,300
Fixed costs:	
Manufacturing	$506,175
Selling and administrative	$123,675

The company has just received a special one-time order for 700 medals at $83 each. For this particular order, no variable selling and administrative costs would be incurred. This order would also have no effect on fixed costs.

Required:
Should the company accept this special order? Why?

Level: Medium LO: 4 Source: CMA, adapted

Answer:
Only the direct materials and direct labor costs are relevant in this decision. To make the decision, we must compute the average direct materials and direct labor cost per unit.

Direct materials	$624,750
Direct labor	306,000
Total	$930,750
Current monthly production	12,750
Average direct materials and direct labor cost per unit	$73

Since price on the special order is $83 per medal and the relevant cost is only $73, the company would earn a profit of $10 per medal. Therefore, the special order should be accepted.

94. Albertine Co. manufactures and sells trophies for winners of athletic and other events. Its manufacturing plant has the capacity to produce 16,000 trophies each month; current monthly production is 12,800 trophies. The company normally charges $113 per trophy. Cost data for the current level of production are shown below:

Variable costs:	
Direct materials	$614,400
Direct labor	$256,000
Selling and administrative	$35,840
Fixed costs:	
Manufacturing	$294,400
Selling and administrative	$94,720

The company has just received a special one-time order for 1,200 trophies at $61 each. For this particular order, no variable selling and administrative costs would be incurred. This order would also have no effect on fixed costs.

Required:
Should the company accept this special order? Why?

Level: Medium LO: 4 Source: CMA, adapted

Answer:
Only the direct materials and direct labor costs are relevant in this decision. To make the decision, we must compute the average direct materials and direct labor cost per unit.

Direct materials	$614,400
Direct labor	256,000
Total	$870,400
Current monthly production	12,800
Average direct materials and direct labor cost per unit	$68

Since price on the special order is $61 per trophy and the relevant cost is $68, the company would suffer a loss of $7 per trophy. Therefore, the special order should not be accepted.

95. Gluth Company makes three products in a single facility. These products have the following unit product costs:

	Products		
	A	*B*	*C*
Direct materials	$22.50	$22.40	$29.20
Direct labor	13.60	11.40	12.50
Variable manufacturing overhead	3.00	3.40	4.50
Fixed manufacturing overhead	19.20	20.10	26.50
Unit product cost	$58.30	$57.30	$72.70

Additional data concerning these products are listed below.

	Products		
	A	*B*	*C*
Mixing minutes per unit	3.30	1.70	1.80
Selling price per unit	$74.70	$76.10	$87.50
Variable selling cost per unit	$1.80	$2.40	$2.90
Monthly demand in units	4,000	2,000	4,000

The mixing machines are potentially the constraint in the production facility. A total of 23,200 minutes are available per month on these machines.
Direct labor is a variable cost in this company.

Required:

a. How many minutes of mixing machine time would be required to satisfy demand for all four products?
b. How much of each product should be produced to maximize net operating income? (Round off to the nearest whole unit.)
c. Up to how much should the company be willing to pay for one additional hour of mixing machine time if the company has made the best use of the existing mixing machine capacity? (Round off to the nearest whole cent.)

Level: Hard LO: 5

Answer:

a. Demand on the mixing machine:

	Product		
	A	*B*	*C*
Mixing minutes per unit	3.30	1.70	1.80
Monthly demand in units	4,000	2,000	4,000
Total minutes required	13,200	3,400	7,200

Total time required for all products: 23,800

b. Optimal production plan:

	Product		
	A	*B*	*C*
Selling price per unit	$74.70	$76.10	$87.50
Direct materials	$22.50	$22.40	$29.20
Direct labor	13.60	11.40	12.50
Variable manufacturing overhead	3.00	3.40	4.50
Variable selling cost per unit	1.80	2.40	2.90
Total variable cost per unit	$40.90	$39.60	$49.10
Contribution margin per unit	$33.80	$36.50	$38.40
Mixing minutes per unit	3.30	1.70	1.80
Contribution margin per minute	$10.24	$21.47	$21.33
Rank in terms of profitability	3	1	2
Optimal production	3,818	2,000	4,000

c. The company should be willing to pay up to the contribution margin per minute for the marginal job, which is $10.24.

96. Holtz Company makes three products in a single facility. Data concerning these products follow:

	Product		
	A	*B*	*C*
Selling price per unit	$75.90	$71.10	$73.40
Direct materials	$29.70	$30.20	$33.40
Direct labor	$21.20	$19.80	$19.60
Variable manufacturing overhead	$4.90	$5.60	$7.60
Variable selling cost per unit	$1.30	$3.90	$1.80
Mixing minutes per unit	2.10	1.70	1.30
Monthly demand in units	4,000	1,000	2,000

The mixing machines are potentially the constraint in the production facility. A total of 12,500 minutes are available per month on these machines.
Direct labor is a variable cost in this company.

Required:

a. How many minutes of mixing machine time would be required to satisfy demand for all four products?
b. How much of each product should be produced to maximize net operating income? (Round off to the nearest whole unit.)
c. Up to how much should the company be willing to pay for one additional hour of mixing machine time if the company has made the best use of the existing mixing machine capacity? (Round off to the nearest whole cent.)

Level: Medium LO: 5

Answer:

a. Demand on the mixing machine:

	Product		
	A	*B*	*C*
Mixing minutes per unit	2.10	1.70	1.30
Monthly demand in units	4,000	1,000	2,000
Total minutes required	8,400	1,700	2,600

Total time required for all products: 12,700

b. Optimal production plan:

	Product		
	A	*B*	*C*
Selling price per unit	$75.90	$71.10	$73.40
Direct materials	29.70	30.20	33.40
Direct labor	21.20	19.80	19.60
Variable manufacturing overhead	4.90	5.60	7.60
Variable selling cost per unit	1.30	3.90	1.80
Total variable cost per unit	57.10	59.50	62.40
Contribution margin per unit	$18.80	$11.60	$11.00
Mixing minutes per unit	2.10	1.70	1.30
Contribution margin per minute	$8.95	$6.82	$8.46
Rank in terms of profitability	1	3	2
Optimal production	4,000	882	2,000

c. The company should be willing to pay up to the contribution margin per minute for the marginal job, which is $6.82.

97. Wright, Inc. produces three products. Data concerning the selling prices and unit costs of the three products appear below:

	Product		
	C	*D*	*E*
Selling price	$90	$30	$60
Variable costs	$35	$10	$20
Fixed costs	$45	$15	$30
Tapping machine time (minutes)	5	4	2

Fixed costs are applied to the products on the basis of direct labor hours.

Demand for the three products exceeds the company's productive capacity. The tapping machine is the constraint, with only 2,400 minutes of tapping machine time available this week.

Required:

a. Given the tapping machine constraint, which product should be emphasized? Support your answer with appropriate calculations.
b. Assuming that there is still unfilled demand for the product that the company should emphasize in part (a) above, up to how much should the company be willing to pay for an additional hour of tapping machine time?

Level: Hard LO: 5

Answer:

a. The product to emphasize can be determined by computing the contribution margin per unit of the scarce resource, which in this case is tapping machine time.

	Product		
	C	*D*	*E*
Selling price	$90	$30	$60
Variable costs	35	10	20
Contribution margin	$55	$20	$40
Tapping machine time (minutes)	5	4	2
Contribution margin per minute	$11	$5	$20

Product E should be emphasized because it has the greatest contribution margin per unit of the scarce resource.

b. If additional tapping machine time would be used to produce more of Product E, the time would be worth 60 × $20 = $1,200 per hour.

98. Iden Company makes two products from a common input. Joint processing costs up to the split-off point total $64,800 a year. The company allocates these costs to the joint products on the basis of their total sales values at the split-off point. Each product may be sold at the split-off point or processed further. Data concerning these products appear below:

	Product X	*Product Y*	*Total*
Allocated joint processing costs	$32,400	$32,400	$64,800
Sales value at split-off point	$36,000	$36,000	$72,000
Costs of further processing	$20,300	$14,300	$34,600
Sales value after further processing	$55,400	$53,000	$108,400

Required:

a. What is the net monetary advantage (disadvantage) of processing Product X beyond the split-off point?
b. What is the net monetary advantage (disadvantage) of processing Product Y beyond the split-off point?
c. What is the minimum amount the company should accept for Product X if it is to be sold at the split-off point?
d. What is the minimum amount the company should accept for Product Y if it is to be sold at the split-off point?

Level: Hard LO: 6

Answer:

a. & b.

	Product X	*Product Y*
Sales value after further processing	$55,400	$53,000
Costs of further processing	20,300	14,300
Benefit of further processing	35,100	38,700
Less: Sales value at split-off point	36,000	36,000
Net advantage (disadvantage)	$ (900)	$ 2,700

c. & d.

Minimum selling price at split-off	$35,100	$38,700

99. Benjamin Company produces products C, J, and R from a joint production process. Each product may be sold at the split-off point or processed further. Joint production costs of $95,000 per year are allocated to the products based on the relative number of units produced. Data for Benjamin's operations for last year follow:

			Additional sales values and costs if processed further	
Product	*Units Produced*	*Sales values at split-off*	*Sales values*	*Added costs**
C	6,000	$75,000	$100,000	$20,000
J	9,000	$70,000	$115,000	$36,000
R	4,000	$46,500	$55,000	$10,000

*All variable and traceable to the products involved.

Required:
Which products should be processed beyond the split-off point?

Level: Medium LO: 6

Answer:

	Product		
	C	*J*	*R*
Sales value after further processing	$100,000	$115,000	$ 55,000
Sales value after split-off	75,000	70,000	46,500
Added sales value from processing	25,000	45,000	8,500
Added processing costs	20,000	36,000	10,000
Net gain (loss) from further processing	$ 5,000	$ 9,000	$ (1,500)

Products C and J should be processed beyond the split-off point. Product R should be sold at split-off. Joint production costs are not relevant to the decision to sell at split-off or to process further.

Chapter 14 Capital Budgeting Decisions

True/False Questions

1. An investment project with a project profitability index of -0.02 has an internal rate of return that is larger than the discount rate.

   Answer: False Level: Medium LO: 1,2,4

2. Both the net present value method and the internal rate of return method can be used as a screening tool in capital budgeting decisions.

   Answer: True Level: Easy LO: 1,2

3. When considering a number of investment projects, the project that has the best payback period will also always have the highest net present value.

   Answer: False Level: Medium LO: 1,5

4. When discounted cash flow methods of capital budgeting are used, the working capital required for a project is ordinarily counted as a cash outflow at the beginning of the project and as a cash inflow at the end of the project.

   Answer: True Level: Medium LO: 1

5. Discounted cash flow techniques automatically provide for recovery of initial investment.

   Answer: True Level: Medium LO: 1

6. The salvage value of new equipment should not be considered when using the internal rate of return method to evaluate a project.

   Answer: False Level: Medium LO: 2

7. Because of the uncertainty and large cost involved in investments in automated equipment, any intangible benefits from these projects should be ignored.

   Answer: False Level: Easy LO: 3

8. When the internal rate of return method is used to rank investment proposals, the lower the internal rate of return, the more desirable the investment.

   Answer: False Level: Easy LO: 4

9. When computing the project profitability index of an investment project, the investment required will include any investment made in working capital at the beginning of the project.

   Answer: True Level: Medium LO: 4

10. If investment funds are limited, the net present value of one project should not be compared directly to the net present value of another project unless the initial investments in these projects are equal.

    Answer: True Level: Medium LO: 4

11. In calculating payback where new equipment is replacing old equipment, any salvage value to be received on disposal of the old equipment should be deducted from the cost of the new equipment.

    Answer: True Level: Medium LO: 5

12. In the payback method, depreciation is added back to net operating income when computing the net annual cash flow.

    Answer: True Level: Medium LO: 5

13. The simple rate of return method is desirable because of its simplicity and the fact that it takes the time value of money into account.

    Answer: False Level: Medium LO: 6

14. The present value of a cash flow will never be greater than the future dollar amount of the cash flow.

    Answer: True Level: Easy LO: 7

15. If salvage value is ignored in depreciating an asset for tax purposes, any sales proceeds received at the end of the life of the asset are fully taxable as income.

    Answer: True Level: Medium LO: 8 Appendix: 14D

Multiple Choice Questions

16. If a company has computed a project profitability index of -0.015 for an investment project, then:
    A) the project's internal rate of return is less than the discount rate.
    B) the project's internal rate of return is greater than the discount rate.
    C) the project's internal rate of return is equal to the discount rate.
    D) the relationship of the internal rate of return and the discount rate is impossible to determine from the data given.

    Answer: A Level: Medium LO: 1,2,4

17. If the project profitability index of an investment project is zero, then:
    A) the project's internal rate of return is less than the discount rate.
    B) the project's internal rate of return is greater than the discount rate.
    C) the project's internal rate of return is equal to the discount rate.
    D) the relationship of the rate of return and the discount rate is impossible to determine from the data given.

    Answer: C Level: Medium LO: 1,2,4

18. If the internal rate of return of an investment in equipment is equal to the discount rate:
    A) the net present value of the investment will be zero.
    B) the payback period of the investment will be equal to the useful life of the equipment.
    C) neither A nor B above will be true.
    D) both A and B above will be true.

    Answer: A Level: Medium LO: 1,2,5

19. Neu Company is considering the purchase of an investment that has a positive net present value based on a discount rate of 12%. The internal rate of return would be:
    A) zero.
    B) 12%.
    C) greater than 12%.
    D) less than 12%.

    Answer: C Level: Medium LO: 1,2 Source: CPA, adapted

20. The assumption that the cash flows from an investment project are reinvested at the company's discount rate applies to:
    A) both the internal rate of return and the net present value methods.
    B) only the internal rate of return method.
    C) only the net present value method.
    D) neither the internal rate of return nor net present value methods.

    Answer: C Level: Medium LO: 1,2

21. The net present value of a proposed investment is negative. Therefore, the discount rate used must be:
    A) greater than the project's internal rate of return.
    B) less than the project's internal rate of return.
    C) greater than the minimum required rate of return.
    D) less than the minimum required rate of return.

    Answer: A Level: Medium LO: 1,2 Source: CMA, adapted

22. Some investment projects require that a company increase its working capital. Under the net present value method, the investment and eventual recovery of working capital should be treated as:
    A) an initial cash outflow.
    B) a future cash inflow.
    C) both an initial cash outflow and a future cash inflow.
    D) irrelevant to the net present value analysis.

    Answer: C Level: Medium LO: 1

23. The net present value (NPV) method of investment project analysis assumes that the project's cash flows are reinvested at the:
    A) internal rate of return.
    B) discount rate used in the NPV calculation.
    C) firm's simple rate of return.
    D) firm's average ROI.

    Answer: B Level: Medium LO: 1 Source: CMA, adapted

24. If taxes are ignored, all of the following items are included in a discounted cash flow analysis except:
    A) future operating cash savings.
    B) depreciation expense.
    C) future salvage value.
    D) investment in working capital.

    Answer: B Level: Medium LO: 1 Source: CMA, adapted

25. In capital budgeting computations, discounted cash flow methods:
    A) automatically provide for recovery of initial investment.
    B) can't be used unless cash flows are uniform from year to year.
    C) assume that all cash flows occur at the beginning of a period.
    D) responses a, b, and c are all correct.

    Answer: A Level: Medium LO: 1

26. The internal rate of return for a project can be determined:
    A) only if the project's cash flows are constant.
    B) by finding the discount rate that yields a zero net present value for the project.
    C) by subtracting the company's cost of capital from the project's profitability index.
    D) only if the project profitability index is greater than zero.

    Answer: B Level: Medium LO: 2 Source: CMA, adapted

27. The investment required for the project profitability index should:
    A) be reduced by the amount of any salvage recovered from the sale of old equipment.
    B) be reduced by the amount of any salvage recovered from the sale of the new equipment at the end of its useful life.
    C) be reduced by the amount of any salvage recovered from the sale of both the old and new equipment.
    D) none of the above is correct.

    Answer: A Level: Medium LO: 4

28. Which of the following represents the correct treatment of a loss on the sale of an old asset in a net present value analysis under the total cost approach?
    A) Multiply the amount of the loss times one minus the tax rate prior to discounting.
    B) Multiply the amount of the loss times the tax rate prior to discounting.
    C) Make no adjustment to the amount of the loss prior to discounting.
    D) None of the above.

    Answer: B Level: Medium LO: 8 Appendix: 14D

29. In net present value analysis, the release of working capital at the end of a project should be:
    A) ignored.
    B) included as a cash outflow.
    C) included as a cash inflow.
    D) included as a tax deduction.

    Answer: C Level: Easy LO: 8 Appendix: 14D

30. Buret Corporation is contemplating a plant expansion capital budgeting decision. The plant expansion will require an $80,000 increase in working capital. This amount will be released at the end of the useful life of this project. Which of the following will increase the present value of the cash flows associated with the increase and release of the $80,000 of working capital?
    A) an increase in the cost of capital.
    B) an increase in the tax rate.
    C) an increase in the useful life of the project.
    D) none of the above.

    Answer: D Level: Medium LO: 8 Appendix: 14D

31. (Ignore income taxes in this problem.) Ataxia Fitness Center is considering an investment in some additional weight training equipment. The equipment has an estimated useful life of 10 years with no salvage value at the end of the 10 years. Ataxia expects net annual cash inflows of $54,000 from this equipment. Ataxia's internal rate of return on this equipment is 14%. Ataxia's discount rate is also 14%. What is the payback period on this equipment?
    A) 1.92 years
    B) 2.70 years
    C) 3.70 years
    D) 5.22 years

    Answer: D Level: Hard LO: 1,2,5

32. (Ignore income taxes in this problem.) Ludington, Inc. purchased a new machine on January 1 for $350,000. The machine is expected to have a useful life of 8 years and no salvage value. Straight-line depreciation is to be used. The internal rate of return on the project is 14%. The present value of the annual cash inflows generated by the machine was calculated to be $371,120 using the internal rate of return of 14%. What was the annual cash inflow that was used in the calculation of the present value?
A) $350,000 x 0.351
B) $350,000 ÷ 4.639
C) $371,120 x 0.351
D) $371,120 ÷ 4.639

Answer: D Level: Hard LO: 1,2 Source: CPA, adapted

33. (Ignore income taxes in this problem.) An investment project has the following characteristics:

Cost of equipment	$22,820
Annual cash inflows	$5,000
Internal rate of return.....	12%

The life of the equipment would be:
A) It is impossible to determine from the data given.
B) 7 years
C) 12 years
D) 4.56 years.

Answer: B Level: Hard LO: 1,2

34. (Ignore income taxes in this problem.) The Allen Company is planning an investment with the following characteristics:

Useful life.....	7 years
Yearly net cash inflow.....	$40,000
Salvage value.....	$0
Internal rate of return.....	20%
Discount rate.....	16%

The initial cost of the equipment is:
A) $240,080
B) $152,480
C) $144,200
D) Cannot be determined from the given information.

Answer: C Level: Hard LO: 1,2

35. (Ignore income taxes in this problem.) Highpoint, Inc., is considering investing in automated equipment with a ten-year useful life. Managers at Highpoint have estimated the cash flows associated with the tangible costs and benefits of automation, but have been unable to estimate the cash flows associated with the intangible benefits. Using the company's 12% required rate of return, the net present value of the cash flows associated with just the tangible costs and benefits is a negative $282,500. How large would the annual net cash inflows from the intangible benefits have to be to make this a financially acceptable investment?
A) $20,000
B) $28,250
C) $35,000
D) $50,000

Answer: D Level: Medium LO: 1,3

36. (Ignore income taxes in this problem.) A company wants to have $40,000 at the end of a five-year period through investment of a single sum now. How much needs to be invested in order to have the desired sum in five years, if the money can be invested at 10%:
A) $10,551
B) $8,000
C) $24,840
D) $12,882

Answer: C Level: Easy LO: 1

37. (Ignore income taxes in this problem.) The following data on a proposed investment project have been provided:

Cost of equipment	$50,000
Working capital required	$30,000
Salvage value of equipment	$0
Annual cash inflows from the project	$20,000
Required rate of return	20%
Life of the project	8 years

The net present value of the project would be:
A) $3,730
B) $0
C) $32,450
D) $88,370

Answer: A Level: Medium LO: 1

38. (Ignore income taxes in this problem.) Stratford Company purchased a machine with an estimated useful life of seven years. The machine will generate cash inflows of $9,000 each year over the next seven years. If the machine has no salvage value at the end of seven years, and assuming the company's discount rate is 10%, what is the purchase price of the machine if the net present value of the investment is $17,000?
A) $43,812
B) $26,812
C) $17,000
D) $22,195

Answer: B Level: Hard LO: 1

39. (Ignore income taxes in this problem.) Anthony operates a part time auto repair service. He estimates that a new diagnostic computer system will result in increased cash inflows of $1,500 in Year 1, $2,100 in Year 2, and $3,200 in Year 3. If Anthony's required rate of return is 10%, then the most he would be willing to pay for the new computer system would be:
A) $4,599
B) $5,501
C) $5,638
D) $5,107

Answer: B Level: Medium LO: 1

40. (Ignore income taxes in this problem.) Fossa Road Paving Company is considering an investment in a curb-forming machine. The machine will cost $240,000, will last 10 years, and will have a $40,000 salvage value at the end of 10 years. The machine is expected to generate net cash inflows of $60,000 per year in each of the 10 years. Fossa's discount rate is 18%. What is the net present value of this machine?
A) $5,840
B) $37,280
C) $(48,780)
D) $69,640

Answer: B Level: Medium LO: 1

41. (Ignore income taxes in this problem.) Apnea Video Rental Store is considering the purchase of an almost new minivan to use as a vehicle to deliver and pick up video tapes for customers. The minivan will cost $18,000 and is expected to last 8 years but only if the engine is overhauled at a cost of $3,000 at the end of year 3. The minivan is expected to have a $1,000 salvage value at the end of 8 years. This delivery service is expected to generate net cash inflows of $6,000 per year in each of the 8 years. Apnea's discount rate is 14%. What is the net present value of this investment opportunity?
A) $(2,826)
B) $(3,801)
C) $7,185
D) $8,160

Answer: D Level: Medium LO: 1

42. (Ignore income taxes in this problem.) In an effort to reduce costs, Pontic Manufacturing Corporation is considering an investment in equipment that will reduce defects. This equipment will cost $420,000, will have an estimated useful life of 10 years, and will have an estimated salvage value of $50,000 at the end of 10 years. Pontic's discount rate is 22%. What amount of cost savings will this equipment have to generate per year in each of the 10 years in order for it to be an acceptable project?
A) $50,690 or more
B) $41,315 or more
C) $105,315 or more
D) $94,316 or more

Answer: C Level: Hard LO: 1

43. (Ignore income taxes in this problem.) Naomi Corporation has a capital budgeting project that has a negative net present value of $36,000. The life of this project is 6 years. Naomi's discount rate is 20%. By how much would the annual cash inflows from this project have to increase in order to have a positive net present value?
A) $1,200 or more
B) $2,412 or more
C) $6,000 or more
D) $10,824 or more

Answer: D Level: Hard LO: 1

44. (Ignore income taxes in this problem.) The following data pertain to an investment project:

Investment required.....	$34,055
Annual savings	$5,000
Life of the project.....	15 years

The internal rate of return is:
A) 12%
B) 14%
C) 10%
D) 8%

Answer: A Level: Medium LO: 2

45. (Ignore income taxes in this problem.) The Laws company has decided to buy a machine costing $16,000. Estimated cash savings from using the new machine amount to $4,120 per year. The machine will have no salvage value at the end of its useful life of six years. If the required rate of return for Laws Company is 12%, the machine's internal rate of return is closest to:
A) 12%
B) 14%
C) 16%
D) 18%

Answer: B Level: Medium LO: 2

46. (Ignore income taxes in this problem.) James Company is considering buying a new machine costing $30,000. James estimates that the machine will save $6,900 per year in cash operating expenses for the next six years. If the machine has no salvage value at the end of six years and the discount rate used by James is 8%, then the machine's internal rate of return is closest to:
A) 8%
B) 10%
C) 12%
D) 14%

Answer: B Level: Medium LO: 2

47. A project requires an initial investment of $70,000 and has a project profitability index of 0.932. The present value of the future cash inflows from this investment is:
A) $70,000
B) $36,231
C) $135,240
D) Cannot be determined from the data provided.

Answer: C Level: Medium LO: 4

48. Bowen Company is considering several investment proposals, as shown below:

	Investment Proposal			
	A	*B*	*C*	*D*
Investment required.....	$95,000	$120,000	$90,000	$150,000
Present value of future net cash flows	$107,000	$130,000	$105,000	$180,000

If the project profitability index is used, the ranking of the projects would be:
A) D C A B
B) D B A C
C) B A C D
D) D A B C

Answer: A Level: Easy LO: 4

49. Information on four investment proposals is given below:

Proposal Number	*Investment Required*	*Net Present Value*
1	$20,000	$10,000
2	$15,000	$6,000
3	$12,000	$9,600
4	$18,000	$10,800

Rank the proposals in terms of preference according to the project profitability index:
A) 1, 4, 3, 2
B) 4, 1, 3, 2
C) 3, 4, 1, 2
D) 2, 1, 4, 3

Answer: C Level: Medium LO: 4

50. Information on four investment proposals is given below:

Proposal Number	*Investment Required*	*Net Present Value*
1	$8,000	$3,200
2	$12,000	$3,600
3	$10,000	$2,500
4	$4,000	$2,000

Rank the proposals in terms of preference using the project profitability index:
A) 3, 2, 1, 4
B) 2, 3, 1, 4
C) 2, 1, 3, 4
D) 4, 1, 2, 3

Answer: D Level: Medium LO: 4

51. The Gomez Company is considering two projects, T and V. The following information has been gathered on these projects:

	Project T	*Project V*
Initial investment needed.....	$112,500	$75,000
Present value of future cash inflows.....	$168,000	$107,000
Useful life.....	10 years	10 years

Based on this information, which of the following statements is (are) true?

I. Project T has the highest ranking according to the project profitability index criterion.
II. Project V has the highest ranking according to the net present value criterion.

A) Only I
B) Only II
C) Both I and II
D) Neither I nor II

Answer: A Level: Medium LO: 4

52. (Ignore income taxes in this problem.) Major Corporation is considering the purchase of a new machine for $5,000. The machine has an estimated useful life of 5 years and no salvage value. The machine will increase Major's cash flows by $2,000 annually for 5 years. Major uses straight-line depreciation. The company's required rate of return is 10%. What is the payback period for the machine?
A) 5.00 years
B) 2.50 years
C) 7.58 years
D) 8.34 years

Answer: B Level: Easy LO: 5 Source: CPA, adapted

53. (Ignore income taxes in this problem.) Harrison Company is studying a project that would have an eight-year life and would require a $300,000 investment in equipment which has no salvage value. The project would provide net operating income each year as follows for the life of the project:

Sales		$500,000
Less cash variable expenses		200,000
Contribution margin		300,000
Less fixed expenses:		
Fixed cash expenses	$150,000	
Depreciation expenses	37,500	187,500
Net operating income		$112,500

The company's required rate of return is 10%. What is the payback period for this project?
A) 3 years
B) 2 years
C) 2.5 years
D) 2.67 years

Answer: B Level: Medium LO: 5

54. (Ignore income taxes in this problem.) An investment project requires an initial investment of $100,000. The project is expected to generate net cash inflows of $28,000 per year for the next five years. Assuming a 12% discount rate, the project's payback period is:
A) 0.28 years
B) 3.36 years
C) 3.57 years
D) 1.40 years

Answer: C Level: Medium LO: 5 Source: CMA, adapted

55. (Ignore income taxes in this problem.) Mercer Corporation is considering replacing a technologically obsolete machine with a new state-of-the-art numerically controlled machine. The new machine would cost $250,000 and would have a ten-year useful life. Unfortunately, the new machine would have no salvage value. The new machine would cost $12,000 per year to operate and maintain, but would save $55,000 per year in labor and other costs. The old machine can be sold now for scrap for $10,000. The simple rate of return on the new machine is closest to:
A) 17.9%
B) 7.5%
C) 22.0%
D) 7.2%

Answer: B Level: Hard LO: 6

56. (Ignore income taxes in this problem.) Pearson Co. is considering the purchase of a $200,000 machine that is expected to reduce operating cash expenses by $65,000 per year. This machine, which has no salvage value, has an estimated useful life of 5 years and will be depreciated on a straight-line basis. For this machine, the simple rate of return would be:
A) 10%
B) 12.5%
C) 20%
D) 32.5%

Answer: B Level: Medium LO: 6 Source: CPA, adapted

57. (Ignore income taxes in this problem.) Assume you can invest money at a 14% rate of return. How much money must be invested now in order to be able to withdraw $5,000 from this investment at the end of each year for 8 years, the first withdrawal occurring one year from now?
A) $24,840
B) $23,195
C) $21,440
D) $1,755

Answer: B Level: Easy LO: 7

58. (Ignore income taxes in this problem.) How much would you have to invest today in the bank at an interest rate of 5% to have an annuity of $1,400 per year for 5 years, with nothing left in the bank at the end of the 5 years? Select the amount below that is closest to your answer.
A) $6,667
B) $6,061
C) $7,000
D) $1,098

Answer: B Level: Easy LO: 7

59. (Ignore income taxes in this problem.) You have deposited $15,584 in a special account that has a guaranteed interest rate. If you withdraw $3,700 at the end of each year for 5 years, you will completely exhaust the balance in the account. The guaranteed interest rate is closest to:
A) 6%
B) 19%
C) 24%
D) 4%

Answer: A Level: Hard LO: 7

60. (Ignore income taxes in this problem.) You have deposited $16,700 in a special account that has a guaranteed interest rate of 11% per year. If you are willing to completely exhaust the account, what is the maximum amount that you could withdraw at the end of each of the next 6 years? Select the amount below that is closest to your answer.
A) $3,465
B) $3,089
C) $2,783
D) $3,947

Answer: D Level: Medium LO: 7

61. (Ignore income taxes in this problem.) Latting Corporation has entered into a 7 year lease for a building it will use as a warehouse. The annual payment under the lease will be $4,781. The first payment will be at the end of the current year and all subsequent payments will be made at year-ends. What is the present value of the lease payments if the discount rate is 6%?
A) $31,573
B) $22,257
C) $33,467
D) $26,688

Answer: D Level: Easy LO: 7

62. (Ignore income taxes in this problem.) Schaad Corporation has entered into a 8 year lease for a piece of equipment. The annual payment under the lease will be $2,500, with payments being made at the beginning of each year. If the discount rate is 14%, the present value of the lease payments is closest to:
A) $20,000
B) $7,011
C) $17,544
D) $13,220

Answer: D Level: Hard LO: 7

63. A company anticipates a taxable cash receipt of $50,000 in year 3 of a project. The company's tax rate is 30% and its discount rate is 10%. The present value of this future cash flow is closest to:
A) $11,270
B) $15,000
C) $35,000
D) $26,296

Answer: D Level: Medium LO: 8 Appendix: 14D

64. A company anticipates a taxable cash expense of $70,000 in year 2 of a project. The company's tax rate is 30% and its discount rate is 10%. The present value of this future cash flow is closest to:
A) $(40,496)
B) $(17,355)
C) $(21,000)
D) $(49,000)

Answer: A Level: Medium LO: 8 Appendix: 14D

65. A company anticipates a depreciation deduction of $10,000 in year 2 of a project. The company's tax rate is 30% and its discount rate is 10%. The present value of the depreciation tax shield resulting from this deduction is closest to:
A) $3,000
B) $2,479
C) $5,785
D) $7,000

Answer: B Level: Medium LO: 8 Appendix: 14D

66. A company needs an increase in working capital of $30,000 in a project that will last 4 years. The company's tax rate is 30% and its discount rate is 8%. The present value of the release of the working capital at the end of the project is closest to:
A) $22,051
B) $21,000
C) $9,000
D) $15,436

Answer: A Level: Medium LO: 8 Appendix: 14D

67. The Moline Company had sales of $400,000 and expenses of $185,000 last year. All sales were cash sales and all expenses were cash expenses. Moline's tax rate is 30%. The after-tax net cash inflow was:
A) $64,500
B) $150,500
C) $280,000
D) $55,500

Answer: B Level: Easy LO: 8 Appendix: 14D

68. Last year the sales at Seidelman Company were $600,000 and were all cash sales. The company's expenses were $400,000 and were all cash expenses. The tax rate was 30%. The after-tax net cash inflow at Seidelman last year was:
A) $600,000
B) $200,000
C) $60,000
D) $140,000

Answer: D Level: Medium LO: 8 Appendix: 14D

69. Sales of the Kotter Company during the past year were all cash sales. Similarly, all expenses were paid in cash. The tax rate was 30%. If the after-tax net cash inflow from these operations last year was $15,000, and if the total before-tax cash sales were $60,000, then the total before-tax cash expenses must have been:
A) $21,429
B) $27,000
C) $45,000
D) $38,571

Answer: D Level: Medium LO: 8 Appendix: 14D

Use the following to answer questions 70-71:

The Weston Company is analyzing projects A, B, and C as possible investment opportunities. Each of these projects has a useful life of five years. The following information has been obtained:

	Project A	*Project B*	*Project C*
Initial investment required	$500,000	$480,000	$630,000
Present value of future cash inflows	$675,000	$520,000	$690,000
Internal rate of return	18%	14%	16%

70. Which of the following statements is correct?
A) Project B is preferred over Project C according to the project profitability index.
B) Project B is preferred over Project A according to the internal rate of return.
C) Project C is preferred over Project A according to the project profitability index.
D) Project A is preferred over Project C according to a net present value ranking.

Answer: D Level: Easy LO: 1,2,4

71. Which project has the highest ranking according to the net present value and the project profitability index criteria?

	Net Present Value	*Profitability Index*
A)	Project B	Project B
B)	Project A	Project A
C)	Project B	Project A
D)	Project C	Project C

Answer: B Level: Easy LO: 1,4

Use the following to answer questions 72-75:

(Ignore income taxes in this problem.) Overland Company has gathered the following data on a proposed investment project:

Investment in depreciable equipment.....	$150,000
Annual cash flows	$40,000
Salvage value of equipment	$0
Life of the equipment	10 years
Required rate of return	10%

The company uses straight-line depreciation on all equipment.

72. The payback period for the investment is:
    A) 0.27 years
    B) 3.75 years
    C) 10.00 years
    D) 2.13 years

    Answer: B Level: Easy LO: 5

73. The simple rate of return on the investment is:
    A) 26.67%
    B) 16.67%
    C) 36.67%
    D) 10.00%

    Answer: B Level: Medium LO: 6

74. The net present value of this investment is:
    A) $40,000
    B) $3,625
    C) $57,831
    D) $95,800

    Answer: D Level: Medium LO: 1

75. The internal rate of return on the investment is closest to:
    A) 23%
    B) 25%
    C) 24%
    D) 21%

    Answer: A Level: Medium LO: 2

Use the following to answer questions 76-79:

(Ignore income taxes in this problem.) Perky Food Corporation produces and sells coffee jelly. Perky currently produces the jelly using a manual operation but is considering the purchase of machinery to automate its operations. Information related to the two operations is as follows:

	Manual Operation	*Automated Operation*
Cost of machinery	–	$420,000
Useful life of machinery	–	12 years
Expected salvage value in 12 years	–	$0
Expected annual revenue (50,000 jars)	$210,000	$210,000
Expected annual variable costs	$135,000	$42,000
Expected annual fixed costs	$30,000	$72,000

Perky's discount rate is 12%. Perky uses the straight-line method of depreciation.

76. What is the net present value of automating operations using the incremental cost approach?
    A) $11,940
    B) $56,940
    C) $(104,106)
    D) $112,684

    Answer: C Level: Medium LO: 1

77. Within what range does the internal rate of return fall?
    A) 6% to 8%
    B) 10% to 12%
    C) 12% to 14%
    D) 18% to 20%

    Answer: A Level: Medium LO: 2

78. What is the simple rate of return for automating operations?
    A) 3.8%
    B) 12.1%
    C) 14.5%
    D) 22.9%

    Answer: A Level: Medium LO: 6

79. What will be the effect on the net present value of the decision to automate operations if 60,000 jars instead of 50,000 jars are expected to be sold each year? (Assume no change in cost structure or selling price.)
    A) no effect
    B) $52,030 decrease
    C) $63,179 increase
    D) $115,208 increase

    Answer: D Level: Hard LO: 1

Use the following to answer questions 80-82:

(Ignore income taxes in this problem.) Tam Company is negotiating for the purchase of equipment that would cost $100,000, with the expectation that $20,000 per year could be saved in cash operating costs. The equipment's estimated useful life is 10 years, with no salvage value, and would be depreciated by the straight-line method. Tam's required rate of return is 12%.

80. The net present value of this investment is:
    A) $5,760
    B) $6,440
    C) $12,200
    D) $13,000

    Answer: D Level: Easy LO: 1 Source: CPA, adapted

81. The payback period of this investment is:
    A) 4 years
    B) 1 year
    C) 10 years
    D) 5 years

    Answer: D Level: Easy LO: 5 Source: CPA, adapted

82. The simple rate of return of this investment is:
    A) 8%
    B) 20%
    C) 12%
    D) 10%

    Answer: D Level: Easy LO: 6 Source: CPA, adapted

Use the following to answer questions 83-84:

(Ignore income taxes in this problem.) Evans Company is considering rebuilding and selling used alternators for automobiles. The company estimates that the net cash flows (sales less cash operating expenses) arising from the rebuilding and sale of the used alternators would be as follows:

Years 1-10	$100,000
Year 11	$(30,000)
Year 12	$110,000

In addition, Evans Company would need to purchase equipment costing $275,000. The equipment would have a 12-year life and a $25,000 salvage value. The company's required rate of return is 10%.

83. The payback period on this investment is:
    A) 3.00 years
    B) 2.75 years
    C) 1.50 years
    D) 4.00 years

    Answer: B Level: Easy LO: 5

84. The net present value of the project is closest to:
    A) $364,090
    B) $372,065
    C) $339,090
    D) $389,090

    Answer: B Level: Medium LO: 1

Use the following to answer questions 85-86:

Baldock Inc. is considering the acquisition of a new machine that costs $420,000 and has a useful life of 5 years with no salvage value. The incremental net operating income and incremental net cash flows that would be produced by the machine are:

	Incremental Net Operating Income	*Incremental Net Cash Flows*
Year 1	$61,000	$145,000
Year 2	$67,000	$151,000
Year 3	$78,000	$162,000
Year 4	$41,000	$125,000
Year 5	$83,000	$167,000

85. If the discount rate is 12%, the net present value of the investment is closest to:
    A) $330,000
    B) $539,365
    C) $119,365
    D) $420,000

    Answer: C Level: Medium LO: 1 Source: CMA, adapted

86. The payback period of this investment is closest to:
    A) 5.0 years
    B) 3.2 years
    C) 1.9 years
    D) 2.8 years

    Answer: D Level: Medium LO: 5 Source: CMA, adapted

Use the following to answer questions 87-88:

Delley Inc. is considering the acquisition of equipment that costs $340,000 and has a useful life of 6 years with no salvage value. The incremental net cash flows that would be generated by the equipment are:

	Incremental Net Cash Flows
Year 1	$94,000
Year 2	$133,000
Year 3	$96,000
Year 4	$116,000
Year 5	$115,000
Year 6	$87,000

87. If the discount rate is 17%, the net present value of the investment is closest to:
    A) $45,811
    B) $385,811
    C) $301,000
    D) $117,341

    Answer: A Level: Easy LO: 1 Source: CMA, adapted

88. The payback period of this investment, rounded off to the nearest tenth of a year, is closest to:
    A) 3.9 years
    B) 3.6 years
    C) 3.1 years
    D) 5.0 years

    Answer: C Level: Easy LO: 5 Source: CMA, adapted

Use the following to answer questions 89-90:

(Ignore income taxes in this problem.) Westland College has a telephone system that is in poor condition. The system either can be overhauled or replaced with a new system. The following data have been gathered concerning these two alternatives:

	Present System	*New System*
Purchase cost when new.....	$150,000	$200,000
Accumulated depreciation.....	$140,000	
Overhaul costs needed now.....	$130,000	
Annual cash operating costs.....	$80,000	$70,000
Salvage value now.....	$60,000	
Salvage value in 8 years.....	$52,000	$65,000
Working capital required.....		$100,000

Westland College uses a 10% discount rate and the total cost approach to capital budgeting analysis. The working capital required under the new system would be released for use elsewhere at the conclusion of the project. Both alternatives are expected to have a useful life of eight years.

89. The net present value of overhauling the present system is:
    A) $(321,084)
    B) $(532,516)
    C) $(560,536)
    D) $(592,516)

    Answer: B Level: Hard LO: 1

90. The net present value of the new system alternative is:
    A) $(483,095)
    B) $(583,095)
    C) $(596,395)
    D) $(536,395)

    Answer: D Level: Hard LO: 1

Use the following to answer questions 91-92:

(Ignore income taxes in this problem.) Lambert Manufacturing has $100,000 to invest in either Project A or Project B. The following data are available on these projects:

	Project A	*Project B*
Cost of equipment needed now	$100,000	$60,000
Working capital investment needed now		$40,000
Annual cash operating inflows	$40,000	$35,000
Salvage value of equipment in 6 years	$10,000	

Both projects will have a useful life of 6 years. At the end of 6 years, the working capital investment will be released for use elsewhere. Lambert's required rate of return is 14%. The company uses the total cost approach to evaluating alternatives.

91. The net present value of Project A is:
    A) $51,000
    B) $60,120
    C) $55,560
    D) $94,450

    Answer: B Level: Medium LO: 1

92. The net present value of Project B is:
    A) $90,355
    B) $76,115
    C) $36,115
    D) $54,355

    Answer: D Level: Medium LO: 1

Use the following to answer questions 93-95:

(Ignore income taxes in this problem.) Carlson Manufacturing has some equipment that needs to be rebuilt or replaced. The following information has been gathered relative to this decision:

	Present Equipment	*New Equipment*
Purchase cost new	$50,000	$48,000
Remaining book value	$30,000	
Cost to rebuild now	$25,000	
Major maintenance at the end of 3 years	$8,000	$5,000
Annual cash operating costs	$10,000	$8,000
Salvage value at the end of 5 years	$3,000	$7,000
Salvage value now	$9,000	

Carlson uses the total cost approach and a discount rate of 12%. Regardless of which option is chosen, rebuild or replace, at the end of five years Carlson Manufacturing plans to close its domestic manufacturing operations and to move these operations to foreign countries.

93. If the new equipment is purchased, the present value of all cash flows that occur now is:
A) $(48,000)
B) $(39,000)
C) $(41,000)
D) $(37,000)

Answer: B Level: Easy LO: 1

94. If the new equipment is purchased, the present value of the annual cash operating costs associated with this alternative is:
A) $(28,840)
B) $(19,160)
C) $(14,420)
D) $(36,050)

Answer: A Level: Medium LO: 1

95. If the equipment is rebuilt, the present value of all cash flows that occur now is:
A) $(55,000)
B) $(25,000)
C) $(16,000)
D) $(23,000)

Answer: B Level: Easy LO: 1

Use the following to answer questions 96-99:

(Ignore income taxes in this problem.) Cedar Hill Hospital needs to expand its facilities and desires to obtain a new building on a piece of property adjacent to its present location. Two options are available to Cedar Hill, as follows:

Option 1: Buy the property, erect the building, and install the fixtures at a total cost of $600,000. This cost would be paid off in five installments: an immediate payment of $200,000, and a payment of $100,000 at the end of each of the next four years. The annual cash operating costs associated with the new facilities are estimated to be $12,000 per year. The new facilities would be occupied for thirteen years, and would have a total resale value of $300,000 at the end of the 13-year period.

Option 2: A leasing company would buy the property and construct the new facilities for Cedar Hill which would then be leased back to Cedar Hill at an annual lease cost of $70,000. The lease period would run for 13 years, with each payment being due at the BEGINNING of the year. Additionally, the company would require an immediate $10,000 security deposit, which would be returned to Cedar Hill at the end of the 13-year period. Finally, Cedar Hill would have to pay the annual maintenance cost of the facilities, which is estimated to be $4,000 per year. There would be no resale value at the end of the 13-year period under this option.

The hospital uses a discount rate of 14% and the total-cost approach to net present value analysis in evaluating its investment decisions.

96. Under option 1, the present value of all cash outflows associated with buying the property, erecting the building, and installing the fixtures is closest to:
    A) $(200,000)
    B) $(491,400)
    C) $(600,000)
    D) $(387,200)

    Answer: B Level: Hard LO: 1

97. Under option 1, the net present value of all cash flows is closest to:
    A) $(456,000)
    B) $(600,000)
    C) $(300,000)
    D) $(507,000)

    Answer: D Level: Hard LO: 1

98. Under option 2, the present value of all the annual lease payments of $70,000 is closest to:
A) $(466,200)
B) $(408,900)
C) $(483,700)
D) $(910,000)

Answer: A Level: Hard LO: 1

99. Under option 2, the present value of all cash flows associated with maintenance costs is closest to:
A) $(23,400)
B) $(52,000)
C) $(70,100)
D) $(4,000)

Answer: A Level: Hard LO: 1

Use the following to answer questions 100-104:

Hasko Inc. has provided the following data to be used in evaluating a proposed investment project:

Initial investment.....	$820,000
Annual cash receipts	$656,000
Life of the project.....	9 years
Annual cash expenses	$295,000
Salvage value	$41,000
Tax rate.....	30%

For tax purposes, the entire initial investment without any reduction for salvage value will be depreciated over 7 years. The company uses a discount rate of 10%.

100. When computing the net present value of the project, what are the annual after-tax cash receipts?
A) $410,000
B) $196,800
C) $459,200
D) $60,589

Answer: C Level: Medium LO: 8 Appendix: 14D

101. When computing the net present value of the project, what are the annual after-tax cash expenses?
A) $254,000
B) $206,500
C) $88,500
D) $383,500

Answer: B Level: Medium LO: 8 Appendix: 14D

102. When computing the net present value of the project, what is the annual amount of the depreciation tax shield? In other words, by how much does the depreciation deduction reduce taxes each year in which the depreciation deduction is taken?
A) $82,000
B) $35,143
C) $63,778
D) $27,333

Answer: B Level: Medium LO: 8 Appendix: 14D

103. When computing the net present value of the project, what is the after-tax cash flow from the salvage value in the final year?
A) $28,700
B) $41,000
C) $0
D) $12,300

Answer: A Level: Medium LO: 8 Appendix: 14D

104. The net present value of the project is closest to:
A) $635,299
B) $647,468
C) $818,544
D) $806,375

Answer: C Level: Medium LO: 8 Appendix: 14D

Use the following to answer questions 105-108:

Whitsitt Inc. has provided the following data to be used in evaluating a proposed investment project:

Initial investment.....	$840,000
Annual cash receipts	$630,000
Life of the project.....	9 years
Annual cash expenses	$284,000
Salvage value	$84,000

The company's tax rate is 30%. For tax purposes, the entire initial investment will be depreciated over 7 years without any reduction for salvage value. The company uses a discount rate of 17%.

105. When computing the net present value of the project, what are the annual after-tax cash receipts?
A) $441,000
B) $189,000
C) $378,000
D) $58,800

Answer: A Level: Medium LO: 8

106. When computing the net present value of the project, what are the annual after-tax cash expenses?
A) $85,200
B) $200,000
C) $198,800
D) $369,200

Answer: C Level: Medium LO: 8

107. When computing the net present value of the project, what is the annual amount of the depreciation tax shield? In other words, by how much does the depreciation deduction reduce taxes each year in which the depreciation deduction is taken?
A) $65,333
B) $28,000
C) $36,000
D) $84,000

Answer: C Level: Medium LO: 8

108. When computing the net present value of the project, what is the after-tax cash flow from the salvage value in the final year?
A) $84,000
B) $25,200
C) $0
D) $58,800

Answer: D Level: Medium LO: 8

Use the following to answer questions 109-110:

Weichman Inc. has provided the following data concerning an investment project that has been proposed:

Initial investment.....	$960,000
Annual cash receipts	$624,000
Life of the project.....	8 years
Annual cash expenses	$281,000
Salvage value	$48,000

The company's tax rate is 30%. For tax purposes, the entire initial investment will be depreciated over 7 years without any reduction for salvage value. The company uses a discount rate of 15%.

109. When computing the net present value of the project, what is the after-tax cash flow from the salvage value in the final year?
A) $48,000
B) $14,400
C) $33,600
D) $0

Answer: C Level: Medium LO: 8 Appendix: 14D

110. The net present value of the project is closest to:
A) $299,470
B) $288,483
C) $117,329
D) $128,316

Answer: A Level: Medium LO: 8 Appendix: 14D

Use the following to answer questions 111-112:

Yandell Inc. is considering an investment project that would require an initial investment of $310,000 and that would last for 8 years. The annual cash receipts from the project would be $233,000 and the annual cash expenses would be $117,000. The equipment used in the project could be sold at the end of the project for a salvage value of $16,000. The company's tax rate is 30%. For tax purposes, the entire initial investment will be depreciated over 7 years without any reduction for salvage value. The company uses a discount rate of 19%.

111. When computing the net present value of the project, what are the annual after-tax cash receipts?
A) $116,000
B) $163,100
C) $188,714
D) $69,900

Answer: B Level: Medium LO: 8 Appendix: 14D

112. The net present value of the project is closest to:
A) $11,065
B) $60,302
C) $63,090
D) $13,854

Answer: C Level: Medium LO: 8 Appendix: 14D

Essay Questions

113. (Ignore income taxes in this problem.) Tranter, Inc., is considering a project that would have a ten-year life and would require a $1,500,000 investment in equipment. At the end of ten years, the project would terminate and the equipment would have no salvage value. The project would provide net operating income each year as follows:

Sales		$2,000,000
Less variable expenses		1,100,000
Contribution margin		900,000
Less fixed expenses:		
Fixed out-of-pocket cash expenses	$500,000	
Depreciation	150,000	650,000
Net operating income		$ 250,000

All of the above items, except for depreciation, represent cash flows. The company's required rate of return is 12%.

Required:
a. Compute the project's net present value.
b. Compute the project's internal rate of return to the nearest whole percent.
c. Compute the project's payback period.
d. Compute the project's simple rate of return.

Level: Medium LO: 1,2,5,6

Answer:

a. Since depreciation is the only noncash item on the income statement, the net annual cash flow can be computed by adding back depreciation to net operating income.

Net operating income	$250,000
Depreciation	150,000
Net annual cash flow	$400,000

	Year(s)	*Amount*	*12% Factor*	*Present Value*
Initial investment.....	Now	$(1,500,000)	1.000	$(1,500,000)
Net annual cash flows.....	1-10	$400,000	5.650	2,260,000
Net present value.....				$ 760,000

b. The formula for computing the factor of the internal rate of return (IRR) is:
Factor of the IRR = Investment required ÷ Net annual cash inflow
= $1,500,000 ÷ $400,000 = 3.75 Factor.
To the nearest whole percent, the internal rate of return is 23%.

c. The formula for the payback period is:
Payback period = Investment required ÷ Net annual cash inflow
= $1,500,000 ÷ $400,000 = 3.75 years

d. The formula for the simple rate of return is:
Simple rate of return = Net operating income ÷ Initial investment
= $250,000 ÷ $1,500,000 = 16.7%

114. (Ignore income taxes in this problem.) Allen Company's required rate of return is 12%. The company is considering the purchase of three machines as indicated below. Consider each machine independently.

Required:

a. Machine A will cost $15,000 and have a life of 8 years. Its salvage value will be $1,000 and cost savings are projected at $3,000 per year. Compute the machine's net present value.
b. How much would Allen Company be willing to pay for Machine B if the machine promises annual cash inflows of $6,000 per year for 10 years?
c. Machine C has a projected life of 12 years. What is the machine's internal rate of return, to the nearest whole percent, if it costs $18,000 and will save $2,500 annually in cash operating costs? Would you recommend purchase? Explain.

Level: Medium LO: 1,2

Answer:

a.

	Year(s)	*Amount*	*12% Factor*	*Present Value*
Investment required	now	$(15,000)	1.000	$(15,000)
Annual cost savings	1-8	$3,000	4.968	14,904
Salvage value	8	$1,000	0.404	404
Net present value.....				$ 308

b.

	Year	*Amount*	*12% Factor*	*Present Value*
Annual cash inflows	1-10	$6,000	5.650	$33,900

Since the present value of the cash inflows is $33,900, the company should be willing to spend up to this amount to purchase the machine.

c. Factor of the internal rate of return
= Investment required ÷ Net annual cash flow
= $18,000 ÷ $2,500 = 7.200

To the nearest whole percent, the internal rate of return is 9%.

The machine should not be purchased since the internal rate of return is less than the required rate of return.

115. (Ignore income taxes in this problem.) Five years ago, the City of Paranoya spent $30,000 to purchase a computerized radar system called W.A.S.T.E. (Watching Aliens Sent To Earth). Recently, a sales rep from W.A.S.T.E. Radar Company told the city manager about a new and improved radar system that can be purchased for $50,000. The rep also told the manager that the company would give the city $10,000 in trade on the old system. The new system will last 10 years. The old system will also last that long but only if a $4,000 upgrade is done in 5 years. The manager assembled the following information to use in the decision as to which system is more desirable:

	Old System	*New System*
Cost of radar system	$30,000	$50,000
Current salvage value	$10,000	–
Salvage value in 10 years	$5,000	$8,000
Annual operating costs	$34,000	$29,000
Upgrade required in 5 years	$4,000	–
Discount rate	14%	14%

Required:

a. What is the City of Paranoya's net present value for the decision described above? Use the total cost approach.
b. Should the City of Paranoya purchase the new system or keep the old system?

Level: Medium LO: 1

Answer:
a.

Items	*Amount of Cash Flows*	*14% Factor*	*Present Value of Cash Flows*
Purchase the new system:			
Cost of new system (net)	$(40,000)	1.000	$ (40,000)
Annual operating costs	$(29,000)	5.216	(151,264)
Salvage value in 10 years	$8,000	0.270	2,160
Present value			$(189,104)
Keep the old system:			
Annual operating costs	$(34,000)	5.216	$(177,344)
Upgrade	$(4,000)	0.519	(2,076)
Salvage value in 10 years	$5,000	0.270	1,350
Present value			$(178,070)
Net present value in favor of keeping the old system			$ (11,034)

b. Keep the old system; the net present value of the costs under the old system is lower than for the new system.

116. (Ignore income taxes in this problem.) The following data concern an investment project:

Investment in equipment	$10,000
Net annual cash inflows	$2,400
Working capital required	$5,000
Salvage value of the equipment	$1,000
Life of the project	8 years
Required rate of return	10%

The working capital will be released for use elsewhere at the conclusion of the project.

Required:
Compute the project's net present value.

Level: Medium LO: 1

Answer:

Item	*Years*	*Amount*	*10% Factor*	*Present Value*
Investment	now	$(10,000)	1.000	$(10,000)
Annual cash inflows	1-8	$2,400	5.335	12,804
Working capital required	now	$(5,000)	1.000	(5,000)
Working capital released	8	$5,000	0.467	2,335
Salvage value equipment	8	$1,000	0.467	467
Net present value				$ 606

117. (Ignore income taxes in this problem.) Five years ago, Joe Sarver purchased 600 shares of 9%, $100 par value preferred stock for $75 per share. Sarver received dividends on the stock each year for five years, and finally sold the stock for $90 per share. Instead of purchasing the preferred stock, Sarver could have invested the funds in a money market certificate yielding a 16% rate of return.

Required:
Determine whether or not the preferred stock provided at least the 16% rate of return that could have been received on the money market certificate.

Level: Hard LO: 1

Answer:

	Years	*Amount*	*16% Factor*	*Present Value*
Investment in preferred stock	Now	$(45,000)	1.000	$(45,000)
Annual dividends received (9% × $100 × 600)	1-5	$5,400	3.274	17,680
Sale of preferred stock	5	$54,000	0.476	25,704
Net present value				$ (1,616)

No, the stock did not provide a 16 percent rate of return.

118. (Ignore income taxes in this problem.) Big Blue Co. is considering three investment opportunities having cash flows as described below:

- Project I would require an immediate cash outlay of $10,000 and would result in cash savings of $3,000 each year for 8 years.
- Project II would require cash outlays of $3,000 per year and would provide a cash inflow of $30,000 at the end of 8 years.
- Project III would require a cash outlay of $10,000 now and would provide a cash inflow of $30,000 eight years from now.

Required:
If Big Blue has a required rate of return of 14%, determine which, if any, of the three projects is acceptable. Use the NPV method.

Level: Medium LO: 1

Answer:

	Year(s)	*Amount of Cash Flows*	*14% Factor*	*Present Value*
Project I:				
Immediate outlay.....	0	$(10,000)	1.000	$(10,000)
Savings	1-8	$3,000	4.639	13,917
Net present value.....				$ 3,917
Project II:				
Cash outlays	1-8	$(3,000)	4.639	$(13,917)
Cash inflow.....	8	$30,000	0.351	10,530
Net present value.....				$ (3,387)
Project III:				
Cash outlay	0	$(10,000)	1.000	$(10,000)
Cash inflow.....	8	$30,000	0.351	10,530
Net present value.....				$ 530

Conclusion: Projects I and III have positive net present values and are thus acceptable. Project II would not be advisable since its net present value is negative.

119. (Ignore income taxes in this problem.) Axillar Beauty Products Corporation is considering the production of a new conditioning shampoo which will require the purchase of new mixing machinery. The machinery will cost $375,000, is expected to have a useful life of 10 years, and is expected to have a salvage value of $50,000 at the end of 10 years. The machinery will also need a $35,000 overhaul at the end of year 6. A $40,000 increase in working capital will be needed for this investment project. The working capital will be released at the end of the 10 years. The new shampoo is expected to generate net cash inflows of $85,000 per year for each of the 10 years. Axillar's discount rate is 16%.

Required:
a. What is the net present value of this investment opportunity?
b. Based on your answer to (a) above, should Axillar go ahead with the new conditioning shampoo?

Level: Medium LO: 1

Answer:
a.

Items	*Year(s)*	*Amount*	*16% Factor*	*Present Value*
Cost of machinery	Now	$(375,000)	1.000	$(375,000)
Salvage value.....	10	$50,000	0.227	11,350
Overhaul	6	$(35,000)	0.410	(14,350)
Working capital increase ...	Now	$(40,000)	1.000	(40,000)
Working capital release	10	$40,000	0.227	9,080
Annual cash inflows	1-10	$85,000	4.833	410,805
Net present value				$ 1,885

b. Yes, accept project. The net present value is positive.

120. (Ignore income taxes in this problem.) Lajara Inc. has provided the following data concerning a proposed investment project:

Initial investment	$850,000
Life of the project	8 years
Annual net cash inflows	$255,000
Salvage value	$128,000

The company uses a discount rate of 13%.

Required:
Compute the net present value of the project.

Level: Easy LO: 1

Answer:

	Year(s)	*Amount*	*13% Factor*	*PV*
Initial investment	Now	$(850,000)	1.000	$ (850,000)
Annual net cash receipts	1-8	$255,000	4.799	1,223,745
Salvage value	8	$128,000	0.376	48,128
Net present value				$ 421,873

121. (Ignore income taxes in this problem.) Burba Inc. is considering investing in a project that would require an initial investment of $200,000. The life of the project would be 8 years. The annual net cash inflows from the project would be $60,000. The salvage value of the assets at the end of the project would be $30,000. The company uses a discount rate of 17%.

Required:
Compute the net present value of the project.

Level: Easy LO: 1

Answer:

	Year(s)	*Amount*	*17% Factor*	*PV*
Initial investment	Now	$(200,000)	1.000	$(200,000)
Annual net cash receipts	1-8	$60,000	4.207	252,420
Salvage value	8	$30,000	0.285	8,550
Net present value				$ 60,970

122. (Ignore income taxes in this problem.) Grossett Corporation has provided the following data concerning a proposed investment project:

Initial investment	$160,000
Life of the project	6 years
Working capital required	$35,000
Annual net cash inflows	$56,000
Salvage value	$24,000

The company uses a discount rate of 10%. The working capital would be released at the end of the project.

Required:
Compute the net present value of the project.

Level: Easy LO: 1

Answer:

	Year(s)	*Amount*	*10% Factor*	*PV*
Initial investment	Now	$(160,000)	1.000	$(160,000)
Annual net cash inflows	1-6	$56,000	4.355	243,880
Working capital invested	Now	$(35,000)	1.000	(35,000)
Working capital released	6	$35,000	0.564	19,740
Salvage value	6	$24,000	0.564	13,536
Net present value				$ 82,156

123. (Ignore income taxes in this problem.) Woolfolk Corporation is considering investing $210,000 in a project. The life of the project would be 9 years. The project would require additional working capital of $46,000, which would be released for use elsewhere at the end of the project. The annual net cash inflows would be $42,000. The salvage value of the assets used in the project would be $32,000. The company uses a discount rate of 17%.

Required:
Compute the net present value of the project.

Level: Easy LO: 1

Answer:

	Year(s)	*Amount*	*17% Factor*	*PV*
Initial investment	Now	$(210,000)	1.000	$(210,000)
Annual net cash inflows	1-9	$42,000	4.451	186,942
Working capital invested	Now	$(46,000)	1.000	(46,000)
Working capital released	9	$46,000	0.243	11,178
Salvage value	9	$32,000	0.243	7,776
Net present value				$ (50,104)

124. (Ignore income taxes in this problem.) Allen Company's required rate of return is 14%. The company is considering the purchase of a new machine that will save $10,000 per year in cash operating costs. The machine will cost $40,000 and will have an 8-year useful life with zero salvage value. Straight-line depreciation will be used.

Required:
Compute the machine's internal rate of return to the nearest whole percent. Would you recommend purchase of the machine? Explain.

Level: Medium LO: 2

Answer:

Factor of the internal rate of return = Investment required ÷ Net annual cash flow
= $40,000 ÷ $10,000 = 4.000
To the nearest whole percent, the internal rate of return is 19%.

The machine should be purchased since the internal rate of return is greater than the company's required rate of return.

125. (Ignore income taxes in this problem.) The management of an amusement park is considering purchasing a new ride for $40,000 that would have a useful life of 10 years and a salvage value of $5,000. The ride would require annual operating costs of $21,000 throughout its useful life. The company's discount rate is 13%. Management is unsure about how much additional ticket revenue the new ride would generate-particularly since customers pay a flat fee when they enter the park that entitles them to unlimited rides. Hopefully, the presence of the ride would attract new customers.

Required:
How much additional revenue would the ride have to generate per year to make it an attractive investment?

Level: Hard LO: 3

Answer:

	Years	*Amount*	*13% Factor*	*Present Value*
Cost of asset	Now	$(40,000)	1.000	$ (40,000)
Annual operating costs	1-10	$(21,000)	5.426	(113,946)
Salvage value	10	$5,000	0.295	1,475
Net present value				$(152,471)

$152,471 ÷ 5.426 = $28,100 additional revenue per year would be necessary to justify the investment. This much additional revenue would result in a zero net present value. Any less than this and the net present value would be negative. Any more than this and the net present value would be positive.

126. (Ignore income taxes in this problem.) Swaggerty Company is considering purchasing a machine that would cost $462,000 and have a useful life of 7 years. The machine would reduce cash operating costs by $115,500 per year. The machine would have no salvage value.

Required:
a. Compute the payback period for the machine.
b. Compute the simple rate of return for the machine.

Level: Easy LO: 5,6

Answer:
a. The payback period is computed as follows:

Payback period = Investment required ÷ Net annual cash flow
= $462,000 ÷ $115,500 = 4.00 years

b. The simple rate of return is computed as follows:

Cost of machine, net of salvage value (a)	$462,000
Useful life (b)	7 years
Annual depreciation (a) ÷ (b)	$66,000

Simple rate of return = (Annual cost savings - Annual depreciation)
÷ Initial investment
= $(115,500 - $66,000) ÷ $462,000 = 10.71%

127. (Ignore income taxes in this problem.) Alesi Company is considering purchasing a machine that would cost $243,600 and have a useful life of 8 years. The machine would reduce cash operating costs by $76,125 per year. The machine would have a salvage value of $60,900 at the end of the project.

Required:
a. Compute the payback period for the machine.
b. Compute the simple rate of return for the machine.

Level: Medium LO: 5,6

Answer:
a. The payback period is computed as follows:

Payback period = Investment required ÷ Net annual cash flow
= $243,600 ÷ $76,125 = 3.20 years

In this case the salvage value plays no part in the payback period since all of the investment is recovered before the end of the project.

b. The simple rate of return is computed as follows:

Cost of machine, net of salvage value (a)	$182,700
Useful life (b)	8 years
Annual depreciation (a) ÷ (b)	$22,838

Simple rate of return = (Annual cost savings - Annual depreciation)
÷ Initial investment
= $(76,125 - $22,838) ÷ $243,600 = 21.88%

128. A company is considering purchasing an asset for $60,000 that would have a useful life of 5 years and would have a salvage value of $7,000. For tax purposes, the entire original cost of the asset would be depreciated over 5 years using the straight-line method and the salvage value would be ignored. The asset would generate annual net cash inflows of $27,000 throughout its useful life. The project would require additional working capital of $1,000, which would be released at the end of the project. The company's tax rate is 30% and its discount rate is 10%.

Required:
What is the net present value of the asset?

Level: Medium LO: 8 Appendix: 14D

Answer:

	Years	*Amount*	*Tax Effect*	*After-Tax Cash Flows*	*10% Factor*	*Present Value*
Cost of asset.....	Now	$(60,000)		$(60,000)	1.000	$(60,000)
Working capital needed.....	Now	$(1,000)		$(1,000)	1.000	(1,000)
Net annual cash inflows.....	1-5	$27,000	0.70	$18,900	3.791	71,650
Depreciation tax shield	1-5	$12,000	0.30	$3,600	3.791	13,648
Salvage value	5	$7,000	0.70	$4,900	0.621	3,043
Working capital released.....	5	$1,000		$1,000	0.621	621
Net present value						$ 27,962

129. Management is considering purchasing an asset for $50,000 that would have a useful life of 5 years and no salvage value. For tax purposes, the entire original cost of the asset would be depreciated over 5 years using the straight-line method. The asset would generate annual net cash inflows of $20,000 throughout its useful life. The project would require additional working capital of $7,000, which would be released at the end of the project. The company's tax rate is 30% and its discount rate is 13%.

Required:
What is the net present value of the asset?

Level: Medium LO: 8 Appendix: 14D

Answer:

	Years	*Amount*	*Tax Effect*	*After-Tax Cash Flows*	*13% Factor*	*Present Value*
Cost of asset...	Now	$(50,000)		$(50,000)	1.000	$(50,000)
Working capital needed.....	Now	$(7,000)		$(7,000)	1.000	(7,000)
Net annual cash inflows	1-5	$20,000	0.70	$14,000	3.517	49,238
Depreciation tax shield ...	1-5	$10,000	0.30	$3,000	3.517	10,551
Working capital released.....	5	$7,000		$7,000	0.543	3,801
Net present value						$ 6,590

130. Partida Inc. has provided the following data concerning a proposed investment project:

Initial investment.....	$861,000
Annual cash receipts.....	$603,000
Life of the project.....	5 years
Annual cash expenses.....	$332,000
Salvage value.....	$129,000

The company's tax rate is 30%. For tax purposes, the entire initial investment without any reduction for salvage value will be depreciated over 3 years. The company uses a discount rate of 11%.

Required:

Compute the net present value of the project.

Level: Medium LO: 8 Appendix: 14D

Answer:

Annual cash receipts	$603,000
Annual cash expenses	332,000
Annual net cash receipts	$271,000

Initial investment (a)	$861,000
Tax life (b)	3 years
Annual depreciation deduction (a) ÷ (b)	$287,000

	Year(s)	*Amount*	*Tax Effect*	*After-Tax Cash Flows*
Initial investment	Now	$(861,000)		$(861,000)
Annual net cash receipts	1-5	$271,000	0.70	$189,700
Salvage value	5	$129,000	0.70	$90,300
Annual depreciation deductions	1-3	$287,000	0.30	$86,100

	After-Tax Cash Flows	*11% Factor*	*PV*
Initial investment	$(861,000)	1.000	$(861,000)
Annual net cash receipts	$189,700	3.696	701,131
Salvage value	$90,300	0.593	53,548
Annual depreciation deductions	$86,100	2.444	210,428
Net present value			$ 104,108

131. Rucci Inc. is considering a project that would require an initial investment of $462,000 and would have a useful life of 7 years. The annual cash receipts would be $300,000 and the annual cash expenses would be $120,000. The salvage value of the assets used in the project would be $69,000. The company's tax rate is 30%. For tax purposes, the entire initial investment without any reduction for salvage value will be depreciated over 5 years. The company uses a discount rate of 18%.

Required:
Compute the net present value of the project.

Level: Medium LO: 8 Appendix: 14D

Answer:

Annual cash receipts	$300,000
Annual cash expenses	120,000
Annual net cash receipts	$180,000

Initial investment (a)	$462,000
Tax life (b)	5 years
Annual depreciation deduction (a) ÷ (b)	$92,400

	Year(s)	*Amount*	*Tax Effect*	*After-Tax Cash Flows*
Initial investment	Now	$(462,000)		$(462,000)
Annual net cash receipts	1-7	$180,000	0.70	$126,000
Salvage value	7	$69,000	0.70	$48,300
Annual depreciation deductions	1-5	$92,400	0.30	$27,720

	After-Tax Cash Flows	*18% Factor*	*PV*
Initial investment	$(462,000)	1.000	$(462,000)
Annual net cash receipts	$126,000	3.812	480,312
Salvage value	$48,300	0.314	15,166
Annual depreciation deductions	$27,720	3.127	86,680
Net present value			$ 120,159

Chapter 15 "How Well Am I Doing?" Statement of Cash Flows

True/False Questions

1. An increase in long-term notes payable is considered to be a financing activity and a source of cash on the statement of cash flows.

   Answer: True Level: Medium LO: 1,2

2. Under the indirect method of determining the net cash provided by operating activities on the statement of cash flows, an increase in accounts receivable would be deducted from net income to arrive at net cash provided by financing activities.

   Answer: False Level: Hard LO: 2,3

3. A loss on the sale of an asset would be deducted from net income in computing cash from operating activities under the indirect method on the statement of cash flows.

   Answer: False Level: Hard LO: 2,3

4. Under the indirect method of determining the net cash provided by operating activities on the statement of cash flows, an increase in accounts payable would be recorded as a deduction from net income.

   Answer: False Level: Medium LO: 2,3

5. Under the indirect method of determining the net cash provided by operating activities on the statement of cash flows, an increase in inventory would be added to net income.

   Answer: False Level: Medium LO: 2,3

6. In computing the net cash provided by operating activities under the indirect method on the statement of cash flows, a decrease in accounts payable would be added to net income.

   Answer: False Level: Medium LO: 2,3

7. An increase in a prepaid expense would be deducted from net income in computing net cash provided by operating activities on the statement of cash flows under the indirect method.

   Answer: True Level: Medium LO: 2,3

8. A gain on the sale of equipment would be included as part of a company's investing activities on the statement of cash flows.

   Answer: False Level: Medium LO: 2

9. Payment of cash dividends to shareholders is considered to be an operating activity on the statement of cash flows.

   Answer: False Level: Medium LO: 2

10. Payment of accrued taxes is considered an operating activity on the statement of cash flows.

    Answer: True Level: Medium LO: 2

11. The sale of preferred stock for cash would be classified as an investing activity in the statement of cash flows.

    Answer: False Level: Medium LO: 2

12. The collection of a long-term loan made to a supplier would be treated as an investing activity on a statement of cash flows.

    Answer: True Level: Medium LO: 2

13. Borrowing on a long-term note would be considered a financing activity and a source of cash on the statement of cash flows.

    Answer: True Level: Medium LO: 2

14. Under the direct method of determining the net cash provided by operating activities on the statement of cash flows, an increase in inventory would be deducted from cost of goods sold to convert cost of goods sold to a cash basis.

    Answer: False Level: Hard LO: 4 Appendix: 16

15. Under the direct method of determining the net cash provided by operating activities on the statement of cash flows, a decrease in prepaid expenses would be added to operating expenses to convert operating expenses to a cash basis.

    Answer: False Level: Hard LO: 4 Appendix: 16

Multiple Choice Questions

16. Which of the following would be considered a "source" of cash for purposes of constructing a statement of cash flows?
    A) a decrease in accounts payable.
    B) dividends paid to the company's own shareholders.
    C) an increase in accrued liabilities.
    D) an increase in prepaid expenses.

    Answer: C Level: Medium LO: 1

17. Which of the following would be considered a "source" of cash for purposes of constructing a statement of cash flows?
    A) a decrease in accounts receivable.
    B) an increase in prepaid expenses.
    C) an increase in accrued liabilities.
    D) an increase in plant and equipment.

    Answer: A Level: Medium LO: 1

18. Martin Corporation uses the indirect method to prepare its statement of cash flows. If Martin purchases additional equipment, which results in additional depreciation charges, what net effect will the purchase of this additional equipment have on the net cash provided (used) in the following sections of Martin's statement of cash flows?

	Operating Activities	*Financing Activities*
A)	increase	decrease
B)	increase	no effect
C)	decrease	no effect
D)	no effect	decrease
E)	no effect	no effect

    Answer: E Level: Hard LO: 2,3

19. Under the indirect method of determining net cash provided by operating activities on the statement of cash flows, which of the following would be recorded as a deduction from net income?
    A) A decrease in accounts receivable?
    B) An increase in accounts payable.
    C) A decrease in accounts payable.
    D) An increase in deferred revenue.

    Answer: C Level: Medium LO: 2,3

20. An increase in accounts receivable of $1,000 over the course of a year would be shown on the company's statement of cash flows prepared under the indirect method as:
    A) an addition to net income of $1,000 in order to arrive at net cash provided by operating activities.
    B) a deduction from net income of $1,000 in order to arrive at net cash provided by operating activities.
    C) an addition of $1,000 under financing activities.
    D) a deduction of $1,000 under financing activities.

    Answer: B Level: Medium LO: 2,3

21. A decrease in the taxes payable account of $1,000 over the course of a year would be shown on the company's statement of cash flows prepared under the indirect method as:
    A) an addition to net income of $1,000 in order to arrive at net cash provided by operating activities.
    B) a deduction from net income of $1,000 in order to arrive at net cash provided by operating activities.
    C) an addition of $1,000 under financing activities.
    D) a deduction of $1,000 under financing activities.

    Answer: B Level: Medium LO: 2,3

22. Shoshoni Corporation prepares its statement of cash flows using the indirect method. Which of the following would be added to net income in the operating activities section of the statement?

	Increase in Accounts Receivable	*Decrease in Accounts Payable*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

    Answer: D Level: Medium LO: 2,3

23. Fawn Corporation prepares its statement of cash flows using the indirect method. Which of the following would be added to net income in the operating activities section of the statement?

	Increase in Merchandise Inventory	*Increase in Deferred Income Taxes*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: C Level: Hard LO: 2,3

24. Adah Corporation prepares its statement of cash flows using the indirect method. Which of the following would be deducted from net income in the operating activities section of the statement?

	Decrease in Accounts Receivable	*Decrease in Merchandise Inventory*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: D Level: Medium LO: 2,3

25. Tomlin Corporation prepares its statement of cash flows using the indirect method. Which of the following would be deducted from net income in the operating activities section of the statement?

	Increase in Interest Receivable	*Decrease in Interest Payable*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: A Level: Medium LO: 2,3

26. During the year the balance in the accounts receivable account increased by $6,000. In order to adjust the company's net income to a cash basis using the direct method on the statement of cash flows, it would be necessary to:
    A) deduct the $6,000 from the sales revenue reported on the income statement.
    B) add the $6,000 to the sales revenue reported on the income statement.
    C) deduct the $6,000 from the cost of goods sold reported on the income statement.
    D) add the $6,000 to the cost of goods sold reported on the income statement.

    Answer: A Level: Hard LO: 2,4 Appendix: 16

27. Wesi Corporation prepares its statement of cash flows using the direct method. Which of the following should Wesi classify as an operating activity on its statement?

	Dividends Paid	*Taxes Paid*
A)	Yes	Yes
B)	No	Yes
C)	Yes	No
D)	No	No

    Answer: B Level: Medium LO: 2,4 Appendix: 16

28. In a statement of cash flows, a change in accounts receivables would be classified as:
    A) an operating activity.
    B) a financing activity.
    C) an investing activity.
    D) a noncash item that need not appear on the statement of cash flows.

    Answer: A Level: Easy LO: 2

29. In a statement of cash flows, a change in the taxes payable account would be classified as:
    A) an operating activity.
    B) a financing activity.
    C) an investing activity.
    D) a noncash item that need not appear on the statement of cash flows.

    Answer: A Level: Easy LO: 2

30. In a statement of cash flows, a change in the plant and equipment account would ordinarily be classified as:
    A) an operating activity.
    B) a financing activity.
    C) an investing activity.
    D) a noncash item that need not appear on the statement of cash flows.

    Answer: C Level: Easy LO: 2

31. In a statement of cash flows, a change in the bonds payable account would ordinarily be classified as:
    A) an operating activity.
    B) a financing activity.
    C) an investing activity.
    D) a noncash item that need not appear on the statement of cash flows.

    Answer: B Level: Easy LO: 2

32. In a statement of cash flows, a change in the common stock account would ordinarily be classified as:
    A) an operating activity.
    B) a financing activity.
    C) an investing activity.
    D) a noncash item that need not appear on the statement of cash flows.

    Answer: B Level: Easy LO: 2

33. Which of the following should be classified as a financing activity on a statement of cash flows?
    A) cash received from the sale of merchandise.
    B) cash received from the sale of equipment.
    C) cash received from the issuance of bonds payable.
    D) both A and B above
    E) none of the above

    Answer: C Level: Medium LO: 2

34. Hauta Corporation prepares its statement of cash flows using the indirect method. Which of the following would be deducted from net income in the operating activities section of the statement?

	Amortization Expense	*Gain on Sale of Building*
A)	Yes	Yes
B)	Yes	No
C)	No	Yes
D)	No	No

Answer: C Level: Medium LO: 3

35. Which of the following is not considered to be a cash equivalent for purposes of preparing the statement of cash flows?
A) Accounts receivable.
B) Treasury bills.
C) Money market funds.
D) Commercial paper.

Answer: A Level: Easy LO: 5

36. Frizz Hair Salon had net income of $93,000 for the year just ended. Frizz collected the following additional information to prepare its statement of cash flows for the year:

Increase in accounts receivable	$10,000
Decrease in accounts payable	$2,000
Increase in retained earnings	$31,000
Cash received from sale of equipment	$18,000
Loss on sale of equipment	$5,000
Depreciation expense	$16,000

Frizz uses the indirect method to prepare its statement of cash flows. What is Frizz's net cash provided (used) by operating activities?
A) $92,000
B) $102,000
C) $120,000
D) $126,000

Answer: B Level: Medium LO: 2,3

37. Majorn Auto Parts Store had net income of $81,000 for the year just ended. Majorn collected the following additional information to prepare its statement of cash flows for the year:

Increase in accounts receivable	$102,000
Decrease in merchandise inventory	$18,000
Decrease in accounts payable	$35,000
Increase in retained earnings	$29,000
Cash received from sale of building	$215,000
Gain on sale of building	$47,000
Depreciation expense	$32,000

Majorn uses the indirect method to prepare its statement of cash flows. What is Majorn's net cash provided (used) by operating activities?
A) $41,000
B) $(53,000)
C) $185,000
D) $279,000

Answer: B Level: Hard LO: 2,3

38. On January 1, Joyuda Corporation sold a building for $350,000. The building was purchased eight years ago for $400,000. The accumulated depreciation on the building on the date of sale was $128,000. Joyuda uses the indirect method to prepare its statement of cash flows. What net effect will this sale have on the net cash provided (used) in the operating activities section of Joyuda's statement of cash flows?
A) no effect
B) $78,000 increase
C) $78,000 decrease
D) $50,000 decrease

Answer: A Level: Hard LO: 2,3

39. The following information relates to Jelsa Corporation for last year:

Net income	$64,000
Net decrease in all current assets except cash	$7,000
Net increase in current liabilities	$16,000
Dividends paid on common stock	$10,000
Depreciation expense	$8,000
Loss on sale of machinery	$5,000

What is Jelsa's net cash provided (used) by operating activities for last year on the statement of cash flows? (Assume that current liabilities do not contain any notes payable.)

A) $54,000
B) $58,000
C) $68,000
D) $100,000

Answer: D Level: Medium LO: 2,3

40. The following information relates to Siem, Inc. for last year:

Net income	$5,000
Net increase in all current assets except cash	$43,000
Net decrease in current liabilities	$27,000
Dividends paid on common stock	$25,000
Depreciation expense	$30,000
Gain on sale of building	$11,000

What is Siem's net cash provided (used) by operating activities for last year on the statement of cash flows? (Assume that current liabilities do not contain any notes payable.)

A) $8,000
B) $(17,000)
C) $(46,000)
D) $(71,000)

Answer: C Level: Medium LO: 2,3

41. Klutz Dance Studio had net income of $167,000 for the year just ended. Klutz collected the following additional information to prepare its statement of cash flows for the year:

Decrease in accounts receivable	$24,000
Increase in accounts payable	$11,000
Increase in retained earnings	$92,000
Cash paid for purchase of new music equipment	$20,000
Depreciation expense	$5,000

Klutz uses the indirect method to prepare its statement of cash flows. What is Klutz's net cash provided (used) by operating activities?
A) $95,000
B) $137,000
C) $185,000
D) $207,000

Answer: D Level: Medium LO: 2,3

42. Morgan Company's net income last year was $73,000 and cash dividends declared and paid to the company's stockholders totaled $14,000. Changes in selected balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Accounts receivable	$10,000
Prepaid expenses	$(3,000)
Credit balances:	
Accumulated depreciation	$16,000
Accounts payable	$(4,000)
Bonds payable	$80,000

Based solely on this information, the net cash provided by operations under the indirect method on the statement of cash flows would be:
A) $89,000
B) $78,000
C) $68,000
D) $154,000

Answer: B Level: Hard LO: 2,3

43. Mori Company's net income last year was $25,000 and cash dividends declared and paid to the company's stockholders totaled $10,000. Changes in selected balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Accounts receivable	$(6,000)
Inventory	$2,000
Prepaid expenses	$(1,000)
Long term investments	$20,000
Credit balances:	
Accumulated depreciation	$12,000
Accounts payable	$9,000
Taxes payable	$(5,000)

Based solely on this information, the net cash provided by operations under the indirect method on the statement of cash flows would be:

A) $46,000
B) $4,000
C) $36,000
D) $37,000

Answer: A Level: Hard LO: 2,3

44. Moretta Company's net income last year was $32,000 and cash dividends declared and paid to the company's stockholders totaled $14,000. Changes in selected balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Accounts receivable	$7,000
Inventory	$(4,000)
Prepaid expenses	$(1,000)
Long term investments	$8,000
Credit balances:	
Accumulated depreciation	$17,000
Accounts payable	$(6,000)
Taxes payable	$7,000

Based solely on this information, the net cash provided by operations under the indirect method on the statement of cash flows would be:

A) $24,000
B) $36,000
C) $16,000
D) $48,000

Answer: D Level: Hard LO: 2,3

45. Nornang Company's net income last year was $47,000. Changes in selected balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Accounts receivable	$(13,000)
Inventory	$15,000
Prepaid expenses	$4,000
Credit balances:	
Accumulated depreciation	$32,000
Accounts payable	$(13,000)
Accrued liabilities	$8,000
Taxes payable	$9,000
Deferred taxes	$0

Based solely on this information, the net cash provided by operations under the indirect method on the statement of cash flows would be:

A) $77,000
B) $89,000
C) $79,000
D) $17,000

Answer: A Level: Medium LO: 2,3

46. Norman Company's net income last year was $26,000. Changes in selected balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Accounts receivable	$8,000
Inventory	$12,000
Prepaid expenses	$(6,000)
Credit balances:	
Accumulated depreciation	$24,000
Accounts payable	$(15,000)
Accrued liabilities	$9,000
Taxes payable	$0
Deferred taxes	$5,000

Based solely on this information, the net cash provided by operations under the indirect method on the statement of cash flows would be:
A) $50,000
B) $35,000
C) $17,000
D) $63,000

Answer: B Level: Medium LO: 2,3

47. Four years ago, Sulu Corporation purchased a $75,000 long-term investment in bonds of another corporation. During the current year, this investment was sold for $80,000. Sulu uses the indirect method to prepare its statement of cash flows. What effect will the above transaction have on the investing activities section of Sulu's statement of cash flows for the current year?
A) $80,000 increase
B) $5,000 decrease
C) $5,000 increase
D) $75,000 increase

Answer: A Level: Medium LO: 2,3

48. Severn Corporation prepares its statement of cash flows using the direct method. Last year, Severn reported Income Tax Expense of $27,000. At the beginning of last year, Severn had a $2,000 balance in the Taxes Payable account. At the end of last year, Severn had a $5,000 balance in the account. On its statement of cash flows for last year, what amount should Severn have shown for its Income Tax Expense adjusted to a cash basis (i.e., income taxes paid)?
A) $20,000
B) $22,000
C) $24,000
D) $30,000

Answer: C Level: Medium LO: 2,4 Appendix: 16

49. Honalo Corporation had net sales of $515,000 for the just completed year. Shown below are the beginning and ending balances of various Honalo accounts:

	Ending	*Beginning*
Cash	$102,000	$136,000
Accounts receivable	$254,000	$218,000
Inventory	$461,000	$527,000
Accounts payable	$77,000	$96,000
Retained earnings	$367,000	$298,000

Honalo prepares its statement of cash flows using the direct method. On its statement of cash flows, what amount should Honalo show for its net sales adjusted to a cash basis (i.e., cash received from sales)?
A) $479,000
B) $526,000
C) $545,000
D) $551,000

Answer: A Level: Hard LO: 2,4 Appendix: 16

50. Khmer, Inc. had cost of goods sold of $114,000 for the just completed year. Shown below are the beginning and ending balances of various Khmer accounts:

	Ending	*Beginning*
Cash	$60,000	$47,000
Accounts receivable	$86,000	$96,000
Inventory	$47,000	$54,000
Accounts payable	$29,000	$13,000
Retained earnings	$82,000	$5,000

Khmer prepares its statement of cash flows using the direct method. On its statement of cash flows, what amount should Khmer show for its cost of goods sold adjusted to a cash basis (i.e., cash paid to suppliers)?
A) $91,000
B) $123,000
C) $137,000
D) $147,000

Answer: A Level: Hard LO: 2,4 Appendix: 16

51. Last year Cumpton Company reported a cost of goods sold of $40,000. Inventories decreased by $8,000 during the year, and accounts payable increased by $11,000. The company uses the direct method to determine the net cash provided by operating activities on the statement of cash flows. The cost of goods sold adjusted to a cash basis would be:
A) $21,000
B) $59,000
C) $32,000
D) $29,000

Answer: A Level: Medium LO: 2,4 Appendix: 16

52. Last year Cumba Company reported a cost of goods sold of $30,000. Inventories decreased by $7,000 during the year, and accounts payable decreased by $13,000. The company uses the direct method to determine the net cash provided by operating activities on the statement of cash flows. The cost of goods sold adjusted to a cash basis would be:
A) $23,000
B) $24,000
C) $36,000
D) $43,000

Answer: C Level: Medium LO: 2,4 Appendix: 16

53. Last year Lawrence Company reported sales of $100,000 on its income statement. During the year, accounts receivable decreased by $15,000 and accounts payable decreased by $20,000. The company uses the direct method to determine the net cash provided by operating activities on the statement of cash flows. The sales revenue adjusted to a cash basis for the year would be:
A) $95,000
B) $115,000
C) $105,000
D) $120,000

Answer: B Level: Hard LO: 2,4 Appendix: 16

54. Last year Lawson Company reported sales of $140,000 on its income statement. During the year, accounts receivable decreased by $20,000 and accounts payable increased by $15,000. The company uses the direct method to determine the net cash provided by operating activities on the statement of cash flows. The sales revenue adjusted to a cash basis for the year would be:
A) $175,000
B) $105,000
C) $125,000
D) $160,000

Answer: D Level: Hard LO: 2,4 Appendix: 16

55. Cridland Company's operating expenses for last year totaled $220,000. During the year the company's prepaid expense account balance decreased by $2,000 and accrued liabilities decreased by $6,000. Depreciation charges for the year were $15,000. Based on this information, operating expenses adjusted to a cash basis under the direct method on the statement of cash flows would be:
A) $231,000
B) $239,000
C) $209,000
D) $201,000

Answer: C Level: Medium LO: 2,4 Appendix: 16

56. Criddle Company's operating expenses for last year totaled $260,000. During the year the company's prepaid expense account balance increased by $24,000 and accrued liabilities increased by $15,000. Depreciation charges for the year were $33,000. Based on this information, operating expenses adjusted to a cash basis under the direct method on the statement of cash flows would be:
A) $302,000
B) $236,000
C) $218,000
D) $284,000

Answer: B Level: Medium LO: 2,4 Appendix: 16

57. Crider Company's operating expenses for last year totaled $240,000. During the year the company's prepaid expense account balance decreased by $15,000 and accrued liabilities increased by $13,000. Depreciation charges for the year were $23,000. Based on this information, operating expenses adjusted to a cash basis under the direct method on the statement of cash flows would be:
A) $245,000
B) $291,000
C) $235,000
D) $189,000

Answer: D Level: Medium LO: 2,4 Appendix: 16

58. The Simplex Company reported cost of goods sold on its income statement of $10,000. The following account balances appeared on the company's comparative balance sheet for the same year:

	Ending	*Beginning*
Inventory	$22,000	$20,000
Accounts Payable	$14,000	$11,000

The company uses the indirect method to determine the net cash provided by operating activities. The cost of goods sold, adjusted to a cash basis, on the company's statement of cash flows for the year would be:
A) $11,000
B) $10,000
C) $9,000
D) $5,000

Answer: C Level: Medium LO: 2,4 Appendix: 16

59. Crossland Company reported sales on its income statement of $435,000. On the statement of cash flows, which used the direct method, sales adjusted to a cash basis were $455,000. Crossland Company reported the following account balances on its balance sheet for the year:

Account	*Ending*	*Beginning*
Accounts receivable	$30,000	?
Prepaid expenses	$14,000	$11,000
Inventory	$18,000	$20,000

Based on this information, the beginning balance in accounts receivable was:
A) $50,000
B) $40,000
C) $30,000
D) $20,000

Answer: A Level: Hard LO: 2,4 Appendix: 16

60. Duke Company reported cost of goods sold last year of $270,000 on its income statement. Additional information concerning the company's closing and opening account balances last year follows:

	December 31	*January 1*
Inventory	$60,000	$45,000
Accounts payable	$26,000	$39,000

Duke Company uses the direct method to determine the net cash provided by operating activities on its statement of cash flows. What amount should Duke report as cash paid to suppliers in its statement of cash flows for last year?
A) $242,000
B) $268,000
C) $272,000
D) $298,000

Answer: D Level: Medium LO: 2,4 Source: CPA, adapted Appendix: 16

61. Last year Marks Company sold equipment with a net book value of $135,000 for $110,000 in cash. This equipment was originally purchased for $215,000. What will be the net effect of this transaction on the net cash provided by investing activities on the statement of cash flows?
A) A net addition of $105,000 to cash.
B) A net deduction of $105,000 from cash.
C) A net addition of $25,000 to cash.
D) A net deduction of $25,000 from cash.

Answer: B Level: Hard LO: 2

62. Last year Marymoor Company sold equipment with a net book value of $95,000 for $70,000 in cash. This equipment was originally purchased for $130,000. What will be the net effect of this transaction on the net cash provided by investing activities on the statement of cash flows?
A) A net addition of $25,000 to cash.
B) A net deduction of $25,000 from cash.
C) A net addition of $60,000 to cash.
D) A net deduction of $60,000 from cash.

Answer: D Level: Hard LO: 2

63. The following transactions occurred last year at Joyce Company:

Issuance of shares of the company's own common stock	$80,000
Dividends paid to the company's own shareholders	$3,000
Dividends received from investments in other companies' shares	$5,000
Interest paid on the company's own bonds	$6,000
Repayment of principal on the company's own bonds	$50,000
Proceeds from sale of the company's used equipment	$22,000
Purchase of land	$140,000

Based solely on the above information, the net cash provided by financing activities for the year on the statement of cash flows would be:
A) $306,000
B) $21,000
C) $(92,000)
D) $27,000

Answer: D Level: Hard LO: 2

64. The following transactions occurred last year at Jost Company:

Issuance of shares of the company's own common stock	$170,000
Dividends paid to the company's own shareholders	$7,000
Dividends received from investments in other companies' shares	$4,000
Interest paid on the company's own bonds	$11,000
Repayment of principal on the company's own bonds	$40,000
Proceeds from sale of the company's used equipment	$23,000
Purchase of land	$120,000

Based solely on the above information, the net cash provided by financing activities for the year on the statement of cash flows would be:
A) $112,000
B) $123,000
C) $375,000
D) $19,000

Answer: B Level: Hard LO: 2

65. Martin Company's cash and cash equivalents consist of cash and marketable securities. Last year the company's cash account increased by $42,000 and its marketable securities account decreased by $61,000. Cash provided by operating activities was $140,000. Net cash used for financing activities was $102,000. Based on this information, the net cash flow from investing activities on the statement of cash flows was:
A) a net $103,000 increase.
B) a net $103,000 decrease.
C) a net $38,000 decrease.
D) a net $57,000 decrease.

Answer: D Level: Hard LO: 3

66. Last year Burke Company's cash account decreased by $17,000. Net cash used in investing activities was $19,000. Net cash provided by financing activities was $25,000. The net cash flow provided by (used in) operating activities on the statement of cash flows was:
A) $(11,000)
B) $(17,000)
C) $(23,000)
D) $6,000

Answer: C Level: Medium LO: 3

67. Last year Burach Company's cash account increased by $20,000. Net cash used in investing activities was $34,000. Net cash provided by financing activities was $12,000. On the statement of cash flows, the net cash flow provided by (used in) operating activities was:
    A) $20,000
    B) $42,000
    C) $(2,000)
    D) $(22,000)

    Answer: B Level: Medium LO: 3

Use the following to answer questions 68-69:

Samarium Retail Corporation's most recent comparative Balance Sheet is as follows:

	Ending	*Beginning*
Assets		
Cash	$ 51,000	$ 64,000
Accounts receivable, net	83,000	41,000
Merchandise inventory	96,000	87,000
Equipment	120,000	120,000
Accumulated depreciation	(65,000)	(50,000)
Total assets	$285,000	$262,000
Liabilities and Stockholders' Equity		
Accounts payable	$ 12,000	$ 38,000
Taxes payable	1,000	3,000
Notes payable	30,000	5,000
Common stock	100,000	80,000
Retained earnings	142,000	136,000
Total liabilities and stockholders' equity	$285,000	$262,000

Samarium's net income was $46,000. No direct exchange transactions occurred at Samarium during the year. No equipment was sold or purchased. Cash dividends of $40,000 were declared and paid. Samarium uses the indirect method to prepare its statement of cash flows.

68. What is Samarium's net cash provided (used) by operating activities?
    A) $(18,000)
    B) $(33,000)
    C) $69,000
    D) $84,000

    Answer: A Level: Medium LO: 2,3

69. What is Samarium's net cash provided (used) by investing activities?
    A) $0
    B) $(15,000)
    C) $25,000
    D) $45,000

    Answer: A Level: Medium LO: 2,3

Use the following to answer questions 70-71:

Chenay Service Corporation's most recent comparative Balance Sheet is as follows:

	Ending	*Beginning*
Assets		
Cash	$ 59,000	$ 70,000
Accounts receivable, net	108,000	82,000
Prepaid expenses	10,000	4,000
Equipment	350,000	300,000
Accumulated depreciation	(50,000)	(40,000)
Total assets	$477,000	$416,000
Liabilities and Stockholders' Equity		
Accounts payable	$ 29,000	$ 16,000
Notes payable	78,000	90,000
Common stock	225,000	200,000
Retained earnings	145,000	110,000
Total liabilities and stockholders' equity	$477,000	$416,000

Chenay's net income was $35,000. No direct exchange transactions occurred at Chenay during the year. No equipment was sold and no dividends were paid during the year. Chenay uses the indirect method to prepare its statement of cash flows.

70. What is Chenay's net cash provided (used) by operating activities?
    A) $16,000
    B) $26,000
    C) $80,000
    D) $90,000

    Answer: B Level: Medium LO: 2,3

71. What is Chenay's net cash provided (used) by financing activities?
    A) $13,000
    B) $25,000
    C) $(37,000)
    D) $(62,000)

    Answer: A Level: Medium LO: 2,3

Use the following to answer questions 72-74:

Waste Company's comparative balance sheet and income statement for last year appear below:

Statement of Financial Position

	Ending Balance	*Beginning Balance*
Cash	$ 60,000	$ 22,000
Accounts receivable	40,000	54,000
Inventory	43,000	61,000
Prepaid expenses	22,000	10,000
Long-term investments	260,000	200,000
Plant and equipment	480,000	480,000
Accumulated depreciation	(257,000)	(222,000)
Total assets	$648,000	$605,000
Accounts payable	$ 32,000	$ 50,000
Accrued liabilities	51,000	25,000
Taxes payable	34,000	24,000
Bonds payable	120,000	160,000
Deferred taxes	28,000	16,000
Common stock	180,000	150,000
Retained earnings	203,000	180,000
Total liabilities and owners' equity	$648,000	$605,000

Income Statement

Sales	$600,000
Less cost of goods sold	340,000
Gross margin	260,000
Less operating expenses	160,000
Net operating income	100,000
Less income taxes	30,000
Net income	$ 70,000

The company declared and paid $47,000 in cash dividends during the year. The following questions pertain to the company's statement of cash flows.

72. The net cash provided by (used in) operating activities last year was:
    A) $(15,000)
    B) $105,000
    C) $70,000
    D) $155,000

    Answer: D Level: Medium LO: 2,3

73. The net cash provided by (used in) investing activities last year was:
    A) $(60,000)
    B) $60,000
    C) $(30,000)
    D) $30,000

    Answer: A Level: Medium LO: 2,3

74. The net cash provided by (used in) financing activities last year was:
    A) $57,000
    B) $(57,000)
    C) $10,000
    D) $(10,000)

    Answer: B Level: Medium LO: 2,3

Use the following to answer questions 75-77:

Megrey Company's net income last year was $82,000. Changes in the company's balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Cash	$3,000
Accounts receivable	$5,000
Inventory	$1,000
Prepaid expenses	$(8,000)
Long-term investments	$80,000
Plant and equipment	$25,000
Credit balances:	
Accumulated depreciation	$66,000
Accounts payable	$(7,000)
Accrued liabilities	$(2,000)
Taxes payable	$0
Bonds payable	$(40,000)
Deferred taxes	$15,000
Common stock	$20,000
Retained earnings	$54,000

The company declared and paid cash dividends of $28,000 last year. The following questions pertain to the company's statement of cash flows.

75. The net cash provided by (used in) operating activities last year was:
    A) $90,000
    B) $156,000
    C) $82,000
    D) $148,000

    Answer: B Level: Medium LO: 2,3

76. The net cash provided by (used in) investing activities last year was:
    A) $85,000
    B) $(85,000)
    C) $105,000
    D) $(105,000)

    Answer: D Level: Medium LO: 2,3

77. The net cash provided by (used in) financing activities last year was:
    A) $48,000)
    B) $(48,000)
    C) $20,000
    D) $(20,000)

    Answer: B Level: Medium LO: 2,3

Use the following to answer questions 78-80:

Meguro Company's net income last year was $77,000. Changes in the company's balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Cash	$5,000
Accounts receivable	$1,000
Inventory	$(4,000)
Prepaid expenses	$(5,000)
Long-term investments	$40,000
Plant and equipment	$25,000
Credit balances:	
Accumulated depreciation	$70,000
Accounts payable	$(5,000)
Accrued liabilities	$6,000
Taxes payable	$14,000
Bonds payable	$(50,000)
Deferred taxes	$(6,000)
Common stock	$20,000
Retained earnings	$13,000

The company declared and paid cash dividends of $64,000 last year. The following questions pertain to the company's statement of cash flows.

78. The net cash provided by (used in) operating activities last year was:
    A) $164,000
    B) $77,000
    C) $147,000
    D) $94,000

    Answer: A Level: Medium LO: 2,3

79. The net cash provided by (used in) investing activities last year was:
    A) $65,000
    B) $(65,000)
    C) $45,000
    D) $(45,000)

    Answer: B Level: Medium LO: 2,3

80. The net cash provided by (used in) financing activities last year was:
    A) $(94,000)
    B) $94,000
    C) $(30,000)
    D) $30,000

    Answer: A Level: Medium LO: 2,3

Use the following to answer questions 81-82:

Spad Company recorded the following events last year:

Issuance of shares of the company's own common stock	$350,000
Purchase of bonds issued by other companies	$60,000
Dividends paid to the company's own shareholders	$36,000
Dividends received from investments in other companies' shares	$16,000
Repayment of principal on the company's own bonds	$260,000
Interest paid on the company's own bonds	$3,000
Collection of the principal amount of a loan made to another company	$220,000
Purchase of equipment	$330,000

On the statement of cash flows, some of these events are classified as operating activities, some are classified as investing activities, and some are classified as financing activities.

81. Based solely on the information above, the net cash provided by (used in) financing activities on the statement of cash flows would be:
    A) $54,000
    B) $1,275,000
    C) $51,000
    D) $299,000

    Answer: A Level: Hard LO: 2,3

82. Based solely on the information above, the net cash provided by (used in) investing activities on the statement of cash flows would be:
    A) $(1,275,000)
    B) $(390,000)
    C) $(170,000)
    D) $(650,000)

    Answer: C Level: Hard LO: 2,3

Use the following to answer questions 83-84:

On December 31, Year 1, Rex Corporation borrowed $100,000 from the Third National Bank of Springfield. Rex has five years to pay off the note. On December 31, Year 2, Rex paid $9,000 of interest on the loan and paid off $20,000 of the loan. Rex uses the direct method to prepare its statement of cash flows.

83. What effect will Rex's loan have on each section of its Year 1 statement of cash flows?

	Operating Activities	*Investing Activities*	*Financing Activities*
A)	no effect	$100,000 decrease	$100,000 increase
B)	$100,000 increase	no effect	no effect
C)	no effect	$100,000 increase	no effect
D)	no effect	no effect	$100,000 increase

    Answer: D Level: Medium LO: 2,4 Appendix: 16

84. What effect will Rex's interest and loan payments have on each section of its Year 2 statement of cash flows?

	Operating Activities	*Investing Activities*	*Financing Activities*
A)	$9,000 decrease	$20,000 decrease	no effect
B)	$9,000 decrease	no effect	$20,000 decrease
C)	$29,000 decrease	no effect	no effect
D)	no effect	$9,000 decrease	$20,000 decrease

    Answer: B Level: Medium LO: 2,4 Appendix: 16

Use the following to answer questions 85-86:

Narley Dude Corporation had net sales of $720,000 and cost of goods sold of $385,000 for the just completed year. Shown below are the beginning and ending balances for the year of various Narley Dude accounts:

	Ending	*Beginning*
Cash	$34,000	$20,000
Accounts receivable	$49,000	$19,000
Inventory	$67,000	$44,000
Accounts payable	$15,000	$21,000

Narley Dude prepares its statement of cash flows using the direct method.

85. On its statement of cash flows, what amount should Narley Dude show for its net sales adjusted to a cash basis (i.e., cash received from sales)?
    A) $690,000
    B) $704,000
    C) $750,000
    D) $755,000

    Answer: A Level: Hard LO: 2,4 Appendix: 16

86. On its statement of cash flows, what amount should Narley Dude show for its cost of goods sold adjusted to a cash basis (i.e., cash paid to suppliers)?
    A) $356,000
    B) $368,000
    C) $402,000
    D) $414,000

    Answer: D Level: Hard LO: 2,4 Appendix: 16

Use the following to answer questions 87-91:

The change in each of Klondike Company's balance sheet accounts appears below:

	Increase	*Decrease*
Cash	4,000	
Accounts receivable	5,000	
Inventory		6,000
Prepaid expenses	3,000	
Long-term investments		17,000
Plant and equipment	11,000	
Accumulated depreciation	9,000	
Accounts payable		8,000
Accrued liabilities	5,000	
Bonds payable		12,000
Common stock	3,000	
Retained earnings	3,000	

Klondike Company's income statement for the year appears below:

Sales	$350,000
Cost of goods sold	190,000
Gross margin	160,000
Operating expense	157,000
Net income	$ 3,000

There were no sales or retirements of plant and equipment and no dividends paid during the year. The company pays no income taxes.

The company uses the direct method for determining the net cash provided by operating activities on its statement of cash flows.

87. Using the direct method, sales adjusted to a cash basis was:
    A) $345,000
    B) $350,000
    C) $355,000
    D) $359,000

    Answer: A Level: Medium LO: 2,4 Appendix: 16

88. Using the direct method, cost of goods sold adjusted to a cash basis was:
    A) $190,000
    B) $192,000
    C) $188,000
    D) $184,000

    Answer: B Level: Medium LO: 2,4 Appendix: 16

89. Using the direct method, operating expense adjusted to a cash basis was:
    A) $168,000
    B) $155,000
    C) $146,000
    D) $148,000

    Answer: C Level: Medium LO: 2,4 Appendix: 16

90. The net cash provided (used) by investing activities was:
    A) $(6,000)
    B) $11,000
    C) $(11,000)
    D) $6,000

    Answer: D Level: Medium LO: 2,4 Appendix: 16

91. The net cash provided (used) by financing activities was:
    A) $(9,000)
    B) $(12,000)
    C) $20,000
    D) $(3,000)

    Answer: A Level: Medium LO: 2,4 Appendix: 16

Use the following to answer questions 92-97:

The comparative balance sheets for Rayco, Inc., are presented below:

	Ending	*Beginning*
Cash	$ 20,000	$ 15,000
Accounts receivable (net)	27,000	25,000
Inventory	32,000	35,000
Prepaid expenses	8,000	5,000
Long-term investments	36,000	38,000
Plant and equipment	108,000	92,000
Accumulated depreciation	(49,000)	(30,000)
Total assets	$182,000	$180,000
Accounts payable	$ 30,000	$ 38,000
Notes payable	40,000	32,000
Deferred income taxes	17,000	35,000
Common stock	45,000	40,000
Retained earnings	50,000	35,000
Total liabilities and stockholders equity	$182,000	$180,000

Rayco, Inc., reported the following net income for the year:

Sales	$200,000
Less cost of goods sold	100,000
Gross margin	100,000
Less operating expenses	52,000
Net operating income	48,000
Gain on sale of investments	2,000
Income before taxes	50,000
Less income taxes	20,000
Net income	$ 30,000

There were no sales or retirements of plant and equipment during the year. Dividends paid to shareholders totaled $15,000. The company uses the direct method for determining the net cash provided by operating activities on its statement of cash flows.

92. Using the direct method, sales adjusted to the cash basis would be:
    A) $202,000
    B) $198,000
    C) $200,000
    D) $210,000

    Answer: B Level: Medium LO: 2,4 Appendix: 16

93. Using the direct method, cost of goods sold adjusted to the cash basis would be:
    A) $95,000
    B) $100,000
    C) $105,000
    D) $108,000

    Answer: C Level: Medium LO: 2,4 Appendix: 16

94. The income tax expense adjusted to the cash basis would be:
    A) $18,000
    B) $2,000
    C) $20,000
    D) $38,000

    Answer: A Level: Medium LO: 2,4 Appendix: 16

95. The net cash provided by operating activities would be:
    A) $37,000
    B) $39,000
    C) $30,000
    D) $19,000

    Answer: D Level: Medium LO: 2,4 Appendix: 16

96. The net cash provided by financing activities would be:
    A) $(2,000)
    B) $(10,000)
    C) $(15,000)
    D) $5,000

    Answer: A Level: Medium LO: 2,4 Appendix: 16

97. The net cash provided by investing activities would be:
    A) $(4,000)
    B) $(12,000)
    C) $(16,000)
    D) $4,000

    Answer: B Level: Medium LO: 2,4 Appendix: 16

Use the following to answer questions 98-99:

Last year, Knox Company reported on its income statement sales of $375,000 and cost of goods sold of $140,000. During the year, the balance in accounts receivable increased $30,000, the balance in accounts payable decreased $25,000, and the balance in inventory increased $10,000. The company uses the direct method to determine the net cash provided by operating activities on its statement of cash flows.

98. Under the direct method, sales adjusted to a cash basis would be:
    A) $295,000
    B) $345,000
    C) $405,000
    D) $355,000

    Answer: B Level: Medium LO: 2,4 Appendix: 16

99. Under the direct method, cost of goods sold adjusted to a cash basis would be:
    A) $105,000
    B) $125,000
    C) $175,000
    D) $155,000

    Answer: C Level: Medium LO: 2,4 Appendix: 16

Use the following to answer questions 100-103:

Van Brun Company's comparative balance sheet and income statement for last year appear below:

Statement of Financial Position

	Ending Balance	*Beginning Balance*
Cash	$ 56,000	$ 31,000
Accounts receivable	27,000	42,000
Inventory	69,000	60,000
Prepaid expenses	14,000	19,000
Long-term investments	260,000	180,000
Plant and equipment	410,000	410,000
Accumulated depreciation	(270,000)	(235,000)
Total assets	$566,000	$507,000
Accounts payable	$ 28,000	$ 46,000
Accrued liabilities	31,000	17,000
Taxes payable	17,000	20,000
Bonds payable	140,000	190,000
Deferred taxes	31,000	19,000
Common stock	90,000	60,000
Retained earnings	229,000	155,000
Total liabilities and owners' equity	$566,000	$507,000

Income Statement

Sales	$850,000
Less cost of goods sold	390,000
Gross margin	460,000
Less operating expenses	280,000
Net operating income	180,000
Less income taxes	54,000
Net income	$126,000

The company declared and paid $52,000 in cash dividends during the year. The company uses the direct method to determine the net cash provided by operating activities.

100. On the statement of cash flows, the sales revenue adjusted to a cash basis would be:
A) $850,000
B) $835,000
C) $874,000
D) $865,000

Answer: D Level: Hard LO: 2,4 Appendix: 16

101. On the statement of cash flows, the cost of goods sold adjusted to a cash basis would be:
A) $390,000
B) $363,000
C) $408,000
D) $417,000

Answer: D Level: Hard LO: 2,4 Appendix: 16

102. On the statement of cash flows, the operating expenses adjusted to a cash basis would be:
A) $280,000
B) $226,000
C) $334,000
D) $261,000

Answer: B Level: Hard LO: 2,4 Appendix: 16

103. On the statement of cash flows, the income tax expense adjusted to a cash basis would be:
A) $63,000
B) $57,000
C) $45,000
D) $54,000

Answer: C Level: Hard LO: 2,4 Appendix: 16

Use the following to answer questions 104-107:

The changes in Templin Company's balance sheet account balances for last year appear below:

	Increases (Decreases)
Debit balances:	
Cash	$3,000
Accounts receivable	$13,000
Inventory	$(9,000)
Prepaid expenses	$(2,000)
Long-term investments	$40,000
Plant and equipment	$55,000
Credit balances:	
Accumulated depreciation	$62,000
Accounts payable	$5,000
Accrued liabilities	$14,000
Taxes payable	$8,000
Bonds payable	$(50,000)
Deferred taxes	$(6,000)
Common stock	$20,000
Retained earnings	$47,000

The company's income statement for the year appears below:

Sales	$760,000
Less cost of goods sold	370,000
Gross margin	390,000
Less operating expenses	240,000
Net operating income	150,000
Less income taxes	45,000
Net income	$105,000

The company declared and paid $58,000 in cash dividends during the year. The company uses the direct method to determine the net cash provided by operating activities.

104. On the statement of cash flows, the sales revenue adjusted to a cash basis would be:
A) $738,000
B) $747,000
C) $760,000
D) $773,000

Answer: B Level: Hard LO: 2,4 Appendix: 16

105. On the statement of cash flows, the cost of goods sold adjusted to a cash basis would be:
A) $384,000
B) $365,000
C) $356,000
D) $370,000

Answer: C Level: Hard LO: 2,4 Appendix: 16

106. On the statement of cash flows, the operating expenses adjusted to a cash basis would be:
A) $240,000
B) $162,000
C) $318,000
D) $224,000

Answer: B Level: Hard LO: 2,4 Appendix: 16

107. On the statement of cash flows, the income tax expense adjusted to a cash basis would be:
A) $47,000
B) $37,000
C) $43,000
D) $45,000

Answer: C Level: Hard LO: 2,4 Appendix: 16

Use the following to answer questions 108-111:

The changes in Tempski Company's balance sheet account balances for last year appear below:

	Increases (Decreases)
Debit balances:	
Cash	$(5,000)
Accounts receivable	$(7,000)
Inventory	$14,000
Prepaid expenses	$(8,000)
Long-term investments	$70,000
Plant and equipment	$35,000
Credit balances:	
Accumulated depreciation	$64,000
Accounts payable	$12,000
Accrued liabilities	$(10,000)
Taxes payable	$9,000
Bonds payable	$(30,000)
Deferred taxes	$(10,000)
Common stock	$20,000
Retained earnings	$44,000

The company's income statement for the year appears below:

Sales	$870,000
Less cost of goods sold	360,000
Gross margin	510,000
Less operating expenses	350,000
Net operating income	160,000
Less income taxes	48,000
Net income	$112,000

The company declared and paid $68,000 in cash dividends during the year. The company uses the direct method to determine the net cash provided by operating activities.

108. On the statement of cash flows, the sales revenue adjusted to a cash basis would be:
A) $877,000
B) $870,000
C) $863,000
D) $891,000

Answer: A Level: Hard LO: 2,4 Appendix: 16

109. On the statement of cash flows, the cost of goods sold adjusted to a cash basis would be:
A) $358,000
B) $348,000
C) $362,000
D) $360,000

Answer: C Level: Hard LO: 2,4 Appendix: 16

110. On the statement of cash flows, the operating expenses adjusted to a cash basis would be:
A) $288,000
B) $350,000
C) $412,000
D) $352,000

Answer: A Level: Hard LO: 2,4 Appendix: 16

111. On the statement of cash flows, the income tax expense adjusted to a cash basis would be:
A) $48,000
B) $47,000
C) $39,000
D) $49,000

Answer: D Level: Hard LO: 2,4 Appendix: 16

Essay Questions

112. Alegre Retail Corporation's most recent comparative Balance Sheet is as follows:

	Ending	*Beginning*
Assets		
Cash	$ 7,000	$ 12,000
Accounts receivable, net	11,000	2,000
Merchandise inventory	39,000	24,000
Long-term investments	23,000	9,000
Equipment	83,000	100,000
Accumulated depreciation	(66,000)	(62,000)
Total assets	$97,000	$ 85,000
Liabilities and Stockholders' Equity		
Accounts payable	$ 9,000	$28,000
Taxes payable	1,000	2,000
Notes payable	16,000	10,000
Common stock	42,000	30,000
Retained earnings	29,000	15,000
Total liabilities and stockholders' equity	$97,000	$85,000

Alegre's net income was $34,000. No direct exchange transactions occurred at Alegre during the year. No equipment was purchased. There was a gain of $3,000 when equipment was sold. The accumulated depreciation on the equipment sold was $12,000. Cash dividends of $20,000 were declared and paid during the year. Alegre uses the indirect method to prepare its statement of cash flows.

Required:
Prepare Alegre's statement of cash flows.

Level: Medium LO: 2,3

Answer:

Operating activities:		
Net income		$34,000
Adjustments:		
Increase in accounts receivable	$(9,000)	
Increase in merchandise inventory	(15,000)	
Depreciation ($4,000 + $12,000)	16,000	
Decrease in accounts payable	(19,000)	
Decrease in taxes payable	(1,000)	
Gain on sale	(3,000)	(31,000)
Net cash provided by operating activities		3,000
Investing activities:		
Increase in investments	(14,000)	
Sale of equipment ($17,000 + $3,000 – $12,000)	8,000	
Net cash used in investing activities		(6,000)
Financing activities:		
Increase in notes payable	6,000	
Increase in common stock	12,000	
Dividends paid	(20,000)	
Net cash used in financing activities		(2,000)
Decrease in cash		(5,000)
Cash, beginning		12,000
Cash, ending		$ 7,000

113. Burns Company's net income last year was $91,000. Changes in the company's balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Cash	$19,000
Accounts receivable	$13,000
Inventory	$(16,000)
Prepaid expenses	$4,000
Long-term investments	$10,000
Plant and equipment	$70,000
Credit balances:	
Accumulated depreciation	$31,000
Accounts payable	$(18,000)
Accrued liabilities	$16,000
Taxes payable	$(4,000)
Bonds payable	$(60,000)
Deferred taxes	$8,000
Common stock	$40,000
Retained earnings	$87,000

The company declared and paid cash dividends of $4,000 last year.

Required:

a. Construct in good form the operating activities section of the company's statement of cash flows for the year. (Use the indirect method.)
b. Construct in good form the investing activities section of the company's statement of cash flows for the year.
c. Construct in good form the financing activities section of the company's statement of cash flows for the year.

Level: Medium LO: 2,3

Answer:

a.	Operating activities:		
	Net income		$ 91,000
	Adjustments:		
	Depreciation charges	$31,000	
	Increase in accounts receivable	(13,000)	
	Decrease in inventory	16,000	
	Increase in prepaid expenses	(4,000)	
	Decrease in accounts payable	(18,000)	
	Increase in accrued liabilities	16,000	
	Decrease in taxes payable	(4,000)	
	Increase in deferred taxes	8,000	32,000
	Net cash provided by operating activities		$123,000
b.	Investing activities:		
	Increase in long-term investments		$(10,000)
	Increase in plant & equipment		(70,000)
	Net cash used for investing activities		$(80,000)
c.	Financing activities:		
	Decrease in bonds payable		$(60,000)
	Increase in common stock		40,000
	Cash dividends		(4,000)
	Net cash used in financing activities		$(24,000)

114. Burtch Company's net income last year was $112,000. Changes in the company's balance sheet accounts for the year appear below:

	Increases (Decreases)
Debit balances:	
Cash	$(14,000)
Accounts receivable	$(9,000)
Inventory	$16,000
Prepaid expenses	$(8,000)
Long-term investments	$40,000
Plant and equipment	$30,000
Credit balances:	
Accumulated depreciation	$36,000
Accounts payable	$18,000
Accrued liabilities	$(5,000)
Taxes payable	$3,000
Bonds payable	$(40,000)
Deferred taxes	$8,000
Common stock	$20,000
Retained earnings	$15,000

The company declared and paid cash dividends of $97,000 last year.

Required:

a. Construct in good form the operating activities section of the company's statement of cash flows for the year. (Use the indirect method.)
b. Construct in good form the investing activities section of the company's statement of cash flows for the year.
c. Construct in good form the financing activities section of the company's statement of cash flows for the year.

Level: Medium LO: 2,3

Answer:

a.	Operating activities		
	Net income		$ 112,000
	Adjustments:		
	Depreciation charges	$36,000	
	Decrease in accounts receivable	9,000	
	Increase in inventory	(16,000)	
	Decrease in prepaid expenses	8,000	
	Increase in accounts payable	18,000	
	Decrease in accrued liabilities	(5,000)	
	Increase in taxes payable	3,000	
	Increase in deferred taxes	8,000	61,000
	Net cash provided by operating activities		$ 173,000
b.	Investing activities:		
	Increase in long-term investments		$ (40,000)
	Increase in plant & equipment		(30,000)
	Net cash used for investing activities		$ (70,000)
c.	Financing activities:		
	Decrease in bonds payable		$ (40,000)
	Increase in common stock		20,000
	Cash dividends		(97,000)
	Net cash used in financing activities		$(117,000)

115. The following information was collected from the most recent Income Statement and comparative Balance Sheet of Dolor Corporation:

Increase in cash	$36,000
Decrease in accounts receivable	$17,000
Increase in merchandise inventory	$44,000
Decrease in prepaid rent	$3,000
Increase in equipment	$56,000
Increase in accumulated depreciation	$18,000
Decrease in accounts payable	$25,000
Increase in salaries payable	$2,000
Increase in interest payable	$1,000
Decrease in deferred income taxes	$4,000
Increase in notes payable	$12,000

Dolor's net income for the year was $167,000. No direct exchange transactions occurred at Dolor during the year. No equipment was sold during the year. Cash dividends of $30,000 were declared and paid during the year. Dolor uses the indirect method to prepare its statement of cash flows.

Required:
Prepare Dolor's operating activities section of its statement of cash flows.

Level: Medium LO: 2,3

Answer:

Net income		$167,000
Adjustments:		
Decrease in accounts receivable	$ 17,000	
Increase in merchandise inventory	(44,000)	
Decrease in prepaid rent	3,000	
Depreciation charges	18,000	
Decrease in accounts payable	(25,000)	
Increase in salaries payable	2,000	
Increase in interest payable	1,000	
Decrease in deferred tax	(4,000)	32,000
Net cash provided by operations		$135,000

116. Comparative balance sheets and the income statements for Ellis Company are presented below:

Ellis Company
Balance Sheets
December 31, Year 1 and Year 2

	Year 2	*Year 1*
Assets		
Current assets:		
Cash	$ 45,000	$ 30,000
Accounts receivable	38,000	40,000
Inventory	67,000	60,000
Total current assets	150,000	130,000
Long-term investments	162,000	200,000
Plant and equipment	278,000	150,000
Accumulated depreciation	(52,000)	(50,000)
Total assets	$538,000	$430,000
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 36,000	$ 40,000
Accrued liabilities	24,000	30,000
Total current liabilities	60,000	70,000
Bonds payable	20,000	30,000
Mortgage payable	100,000	
Deferred income taxes	15,000	20,000
Total liabilities	195,000	120,000
Stockholders' equity:		
Common stock	295,000	270,000
Retained earnings	48,000	40,000
Total stockholders' equity	343,000	310,000
Total liabilities and stockholders' equity	$538,000	$430,000

Ellis Company
Income Statement
For the Year Ended December 31, Year 2

Sales	$150,000
Less cost of goods sold	76,500
Gross margin	73,500
Less operating expenses	16,000
Net operating income	57,500
Less loss on sale of investment	2,500
Income before taxes	55,000
Less income taxes	22,000
Net income	$ 33,000

Summary of transactions for Year2:

* During Year 2, the company sold for cash of $35,500 long-term investments with a cost of $38,000 when purchased.
* All sales were on credit.
* The company paid a cash dividend of $25,000.
* Bonds payable of $25,000 were retired by issuing common stock. The bonds retired were equivalent to the market value of the $25,000 stock issued.
* An addition to one of the company's buildings was completed on December 31, Year 2, at a cost of $128,000. The company gave an interest-bearing mortgage for $100,000 and paid $28,000 in cash.
* Bonds payable were sold for $15,000 cash at par value.

Required:
a. Using the indirect method, determine the net cash provided by operating activities for Year 2.
b. Using the direct method, determine the net cash provided by operating activities for Year 2.
c. Using the net cash provided by operating activities figure from either part a or b, prepare a statement of cash flows for Year 2.

Level: Hard LO: 2,3

Answer:

a.

Ellis Company
Statement of Cash Flows
For the Year Ended December 31, Year 2

Operating activities:		
Net income		$33,000
Adjustments to convert to cash basis:		
Depreciation charges	2,000	
Decrease in accounts receivable	2,000	
Increase in inventories	(7,000)	
Decrease in accounts payable	(4,000)	
Decrease in accrued liabilities	(6,000)	
Loss on sale of investments	2,500	
Decrease in deferred income taxes	(5,000)	(16,000)
Net cash provided by operating activities		$17,000

b.

Ellis Company
Statement of Cash Flows
For the Year Ended December 31, Year 2

Sales revenue (as reported)	$150,000	
Adjustments to cash basis:		
Decrease in accounts receivable	2,000	$152,000
Cost of goods sold (as reported)	76,500	
Adjustments to cash basis:		
Increase in inventory	7,000	
Decrease in accounts payable	4,000	(87,500)
Operating expenses (as reported)	16,000	
Adjustments to cash basis:		
Decrease in accrued liabilities	6,000	
Depreciation for the period	(2,000)	(20,000)
Income tax expense (as reported)	22,000	
Adjustments to cash basis:		
Decrease in deferred taxes	5,000	(27,000)
Net cash provided by operating activities		$ 17,500

c.

Ellis Company
Statement of Cash Flows
For the Year Ended December 31, Year 2

Net cash provided by operating activities*		$17,500
Investing activities:		
Sale of long-term investment	$ 35,500	
Additions to plant and equipment	(128,000)	
Net cash provided by investing activities		(92,500)
Financing activities:		
Increase in bonds payable	15,000	
Increase in mortgage payable	100,000	
Pay dividends to shareholders	(25,000)	
Net cash provided by financing activities		90,000
Net increase in cash		15,000
Cash, December 31, Year 1		30,000
Cash, December 31, Year 2		$45,000

*From parts (a) or (b) above.

117. Hesselbaum Retail Corporation's most recent Income Statement and comparative Balance Sheet is as follows:

Hesselbaum Retail Corporation
Income Statement
For the Year Ended December 31, Year 2

Sales	$118,000
Less cost of goods sold	56,000
Gross margin	62,000
Less operating expenses	37,000
Net operating income	25,000
Less loss on sale of equipment	2,000
Income before taxes	23,000
Less income taxes	9,000
Net income	$ 14,000

Hesselbaum Retail Corporation
Comparative Balance Sheet
At December 31, Year 2, and Year 1

	Year 2	*Year 1*
Assets		
Cash	$12,000	$ 4,000
Accounts receivable, net	29,000	7,000
Merchandise inventory	36,000	21,000
Prepaid expenses	6,000	8,000
Equipment	72,000	88,000
Accumulated depreciation	(60,000)	(57,000)
Total assets	$95,000	$71,000
Liabilities and stockholders' equity		
Accounts payable	$17,000	$ 9,000
Wages payable	6,000	1,000
Taxes payable	2,000	3,000
Common stock	50,000	42,000
Retained earnings	20,000	16,000
Total liabilities and stockholders' equity	$95,000	$71,000

No direct exchange transactions occurred at Hesselbaum during Year 2. No equipment was purchased during Year 2. The accumulated depreciation on the equipment sold was $9,000. Cash dividends of $10,000 were declared and paid during Year 2. Hesselbaum uses the direct method to prepare its statement of cash flows.

Required:
Prepare Hesselbaum's operating activities section of its Year 2 statement of cash flows.

Level: Hard LO: 2,4 Appendix: 16

Answer:

Sales revenue (as reported)	$118,000	
Increase in accounts receivable	– 22,000	$96,000
Cost of goods sold (as reported)	56,000	
Increase in merchandise inventory	+ 15,000	
Increase in accounts payable	– 8,000	63,000
Operating expenses (as reported)	37,000	
Decrease in prepaid expenses	– 2,000	
Increase in wages payable	– 5,000	
Depreciation charges	– 12,000	18,000
Income taxes (as reported)	9,000	
Decrease in taxes payable	+ 1,000	10,000
Net cash provided by operating activities		$ 5,000

118. Carr Company's comparative balance sheet and income statement for last year appear below:

Statement of Financial Position

	Ending Balance	*Beginning Balance*
Cash	$ 3,000	$ 23,000
Accounts receivable	83,000	71,000
Inventory	39,000	47,000
Prepaid expenses	9,000	15,000
Long-term investments	240,000	200,000
Plant and equipment	515,000	480,000
Accumulated depreciation	(320,000)	(295,000)
Total assets	$569,000	$541,000
Accounts payable	$ 9,000	$ 25,000
Accrued liabilities	24,000	17,000
Taxes payable	16,000	21,000
Bonds payable	160,000	200,000
Deferred taxes	33,000	25,000
Common stock	170,000	140,000
Retained earnings	157,000	113,000
Total liabilities and owners' equity	$569,000	$541,000

Income Statement

Sales	$850,000
Less cost of goods sold	450,000
Gross margin	400,000
Less operating expenses	270,000
Net operating income	130,000
Less income taxes	39,000
Net income	$ 91,000

The company declared and paid $47,000 in cash dividends during the year.

Required:
Construct in good form the operating activities section of the company's statement of cash flows for the year using the direct method.

Level: Hard LO: 2,4 Appendix: 16

Answer:

Sales (as reported)	$850,000	
Adjustments to a cash basis:		
Increase in accounts receivable	–12,000	$838,000
Cost of goods sold (as reported)	450,000	
Adjustments to a cash basis:		
Decrease in inventory	–8,000	
Decrease in accounts payable	+16,000	458,000
Operating expenses (as reported)	270,000	
Adjustments to a cash basis:		
Decrease in prepaid expenses	–6,000	
Increase in accrued liabilities	–7,000	
Depreciation charges	–25,000	232,000
Income tax expense (as reported)	39,000	
Adjustments to a cash basis:		
Decrease in taxes payable	+5,000	
Increase in deferred taxes	–8,000	36,000
Net cash provided by operating activities		$112,000

119. Carmel Company's comparative balance sheet and income statement for last year appear below:

Statement of Financial Position

	Ending Balance	*Beginning Balance*
Cash	$ 49,000	$ 30,000
Accounts receivable	23,000	30,000
Inventory	63,000	49,000
Prepaid expenses	13,000	19,000
Long-term investments	260,000	200,000
Plant and equipment	520,000	500,000
Accumulated depreciation	(256,000)	(224,000)
Total assets	$672,000	$604,000
Accounts payable	$ 20,000	$ 35,000
Accrued liabilities	30,000	17,000
Taxes payable	15,000	11,000
Bonds payable	100,000	150,000
Deferred taxes	23,000	16,000
Common stock	100,000	70,000
Retained earnings	384,000	305,000
Total liabilities and owners' equity	$672,000	$604,000

Income Statement

Sales	$810,000
Less cost of goods sold	390,000
Gross margin	420,000
Less operating expenses	290,000
Net operating income	130,000
Less income taxes	39,000
Net income	$ 91,000

The company declared and paid $12,000 in cash dividends during the year.

Required:
Construct in good form the operating activities section of the company's statement of cash flows for the year using the direct method.

Level: Hard LO: 2,4

Answer:

Sales	$810,000	
Adjustments to a cash basis:		
Decrease in accounts receivable	+7,000	$817,000
Cost of goods sold	390,000	
Adjustments to a cash basis:		
Increase in inventory	+14,000	
Decrease in accounts payable	+15,000	419,000
Operating expenses	290,000	
Adjustments to a cash basis:		
Decrease in prepaid expenses	–6,000	
Increase in accrued liabilities	–13,000	
Depreciation charges	–32,000	239,000
Income tax expense	39,000	
Adjustments to a cash basis:		
Increase in taxes payable	–4,000	
Increase in deferred taxes	–7,000	28,000
Net cash provided by operating activities		$131,000

120. The following information is taken from the Operating Activities section of the statement of cash flows for the Parks Company for the year just ended:

Net income		$15,000
Adjustments to convert net income to cash basis:		
Accounts receivable	$ 3,000	
Gain on sale of equipment	(3,000)	
Inventory	(7,000)	
Accounts payable	4,000	
Depreciation expense	11,000	
Interest payable	(1,000)	
Prepaid expenses	2,000	
Income tax payable	(7,000)	2,000
Net cash inflow from operating activities		$17,000

The following information is taken from the company's income statement for the year just ended:

Sales	$96,000
Cost of goods sold	42,000
Gross margin	54,000
Operating Expenses	29,000
Net operating income	25,000
Gain on sale of equipment	3,000
Income before taxes	28,000
Income taxes	13,000
Net income	$15,000

Required:

a. For each of the adjustments to convert net income to the cash basis, indicate whether the account increased or decreased.
b. Determine the net cash provided by operating activities using the direct method. You need not prepare the formal operating activities section of the statement of cash flows but you should show the adjustments that must be made to sales, expenses, and so forth and the cash flow balances of sales, expenses, etc.

Level: Medium LO: 2,4

Answer:

a.	Accounts receivable	decrease		
	Gain on sale of equipment	increase		
	Inventory	increase		
	Accounts payable	increase		
	Depreciation expense	increase		
	Interest payable	decrease		
	Prepaid expenses	decrease		
	Income tax payable	decrease		
b.	Sales revenue (as reported)		$96,000	
	Decrease in accounts receivable		+3,000	$99,000
	Cost of goods sold (as reported)		42,000	
	Increase in inventory		+7,000	
	Increase in accounts payable		–4,000	45,000
	Operating expenses (as reported)		29,000	
	Decrease in interest payable		+1,000	
	Decrease in prepaid expenses		–2,000	
	Depreciation expense		–11,000	17,000
	Income tax expense (as reported)		13,000	
	Decrease in income tax payable		+7,000	20,000
	Net cash provided by operating activities			$17,000

Chapter 16 "How Well Am I Doing?" Statement of Cash Flows

NOTES TO THE INSTRUCTOR FOR QUESTIONS 121-122:
* The problem requirement does not indicate whether the indirect or direct method must be used to determine the net cash provided by operating activities. You can, if you choose, specify that either (or even both) methods be used. The solution contains solutions for both methods.

* Due to the length of the problem, you may want to eliminate one or more of the requirements.

121. Daugherty Company's comparative balance sheet and income statement for last year appear below:

Statement of Financial Position

	Ending Balance	*Beginning Balance*
Cash	$ 7,000	$ 21,000
Accounts receivable	71,000	47,000
Inventory	62,000	44,000
Prepaid expenses	2,000	9,000
Long-term investments	310,000	240,000
Plant and equipment	370,000	370,000
Accumulated depreciation	(214,000)	(186,000)
Total assets	$608,000	$545,000
Accounts payable	$ 69,000	$ 48,000
Accrued liabilities	2,000	17,000
Taxes payable	28,000	13,000
Bonds payable	140,000	170,000
Deferred taxes	27,000	17,000
Common stock	90,000	70,000
Retained earnings	252,000	210,000
Total liabilities and owners' equity	$608,000	$545,000

Income Statement

Sales	$940,000
Less cost of goods sold	510,000
Gross margin	430,000
Less operating expenses	270,000
Net operating income	160,000
Less income taxes	48,000
Net income	$112,000

The company declared and paid $70,000 in cash dividends during the year.

Required:

a. Construct in good form the operating activities section of the company's statement of cash flows for the year.
b. Construct in good form the investing activities section of the company's statement of cash flows for the year.
c. Construct in good form the financing activities section of the company's statement of cash flows for the year.

Level: Hard LO: 2

Answer:

a. Operating activities

INDIRECT METHOD		
Net income		$112,000
Adjustments:		
Depreciation charges	$ 28,000	
Increase in accounts receivable	(24,000)	
Increase in inventory	(18,000)	
Decrease in prepaid expenses	7,000	
Increase in accounts payable	21,000	
Decrease in accrued liabilities	(15,000)	
Increase in taxes payable	15,000	
Increase in deferred taxes	10,000	24,000
Net cash provided by operating activities		$136,000

DIRECT METHOD

Sales	$940,000	
Adjustments to a cash basis:		
Increase in accounts receivable	–24,000	$916,000
Cost of goods sold	510,000	
Adjustments to a cash basis:		
Increase in inventory	+18,000	
Increase in accounts payable	–21,000	507,000
Operating expenses	270,000	
Adjustments to a cash basis:		
Decrease in prepaid expenses	–7,000	
Decrease in accrued liabilities	+15,000	
Depreciation charges	–28,000	250,000
Income tax expense	48,000	
Adjustments to a cash basis:		
Increase in taxes payable	–15,000	
Increase in deferred taxes	–10,000	23,000
Net cash provided by operating activities		$136,000

b. Investing activities:

Increase in long-term investments	$(70,000)
Net cash used for investing activities	$(70,000)

c. Financing activities:

Decrease in bonds payable	$(30,000)
Increase in common stock	20,000
Cash dividends	(70,000)
Net cash used in financing activities	$(80,000)

122. Dawson Company's comparative balance sheet and income statement for last year appear below:

Statement of Financial Position

	Ending Balance	*Beginning Balance*
Cash	$ 49,000	$ 22,000
Accounts receivable	50,000	71,000
Inventory	84,000	52,000
Prepaid expenses	17,000	13,000
Long-term investments	240,000	180,000
Plant and equipment	430,000	430,000
Accumulated depreciation	(277,000)	(237,000)
Total assets	$593,000	$531,000
Accounts payable	$ 43,000	$ 61,000
Accrued liabilities	33,000	19,000
Taxes payable	37,000	25,000
Bonds payable	110,000	160,000
Deferred taxes	31,000	19,000
Common stock	70,000	50,000
Retained earnings	269,000	197,000
Total liabilities and owners' equity	$593,000	$531,000

Income Statement

Sales	$680,000
Less cost of goods sold	300,000
Gross margin	380,000
Less operating expenses	250,000
Net operating income	130,000
Less income taxes	39,000
Net income	$ 91,000

The company declared and paid $19,000 in cash dividends during the year.

Required:

a. Construct in good form the operating activities section of the company's statement of cash flows for the year.
b. Construct in good form the investing activities section of the company's statement of cash flows for the year.
c. Construct in good form the financing activities section of the company's statement of cash flows for the year.

Level: Hard LO: 2
Answer:

a. Operating activities

INDIRECT METHOD		
Net income		$ 91,000
Adjustments:		
Depreciation charges	$40,000	
Decrease in accounts receivable	21,000	
Increase in inventory	(32,000)	
Increase in prepaid expenses	(4,000)	
Decrease in accounts payable	(18,000)	
Increase in accrued liabilities	14,000	
Increase in taxes payable	12,000	
Increase in deferred taxes	12,000	45,000
Net cash provided by operating activities		$136,000

DIRECT METHOD

Sales	$680,000	
Adjustments to a cash basis:		
Decrease in accounts receivable	+21,000	$701,000
Cost of goods sold	300,000	
Adjustments to a cash basis:		
Increase in inventory	+32,000	
Decrease in accounts payable	+18,000	350,000
Operating expenses	250,000	
Adjustments to a cash basis:		
Increase in prepaid expenses	+4,000	
Increase in accrued liabilities	–14,000	
Depreciation charges	–40,000	200,000
Income tax expense	39,000	
Adjustments to a cash basis:		
Increase in taxes payable	–12,000	
Increase in deferred taxes	–12,000	15,000
Net cash provided by operating activities		$136,000

b. Investing activities:

Increase in long-term investments	$(60,000)
Net cash used for investing activities	$(60,000)

c. Financing activities:

Decrease in bonds payable	$(50,000)
Increase in common stock	20,000
Cash dividends	(19,000)
Net cash used in financing activities	$(49,000)

Chapter 16 Financial Statement Analysis

True/False Questions

1. Vertical analysis of financial statements is accomplished through the preparation of common-size statements.

   Answer: True Level: Easy LO: 1

2. The gross margin percentage is computed by dividing the gross margin by net income before interest and taxes.

   Answer: False Level: Medium LO: 1

3. If a company's return on assets is substantially higher than its cost of borrowing, then the common stockholders would normally want the company to have a relatively high debt/equity ratio.

   Answer: True Level: Easy LO: 2,4

4. The dividend yield ratio is calculated by dividing dividends per share by earnings per share.

   Answer: False Level: Easy LO: 2

5. Financial leverage is positive if the interest rate on debt is lower than the return on total assets.

   Answer: True Level: Medium LO: 2

6. To compute the return on total assets, net income should be adjusted by adding after-tax interest expense and preferred dividends.

   Answer: False Level: Medium LO: 2

7. When computing the return on common equity, the income available for common stockholders is determined by deducting preferred dividends from net income.

   Answer: True Level: Easy LO: 2

8. Issuing common stock will increase a company's financial leverage.

   Answer: False Level: Medium LO: 2

9. Book value per share is the key to predicting a company's future income producing ability.

   Answer: False Level: Easy LO: 2

10. The book value per share of common stock reflects the balance sheet carrying value of already completed transactions.

    Answer: True Level: Medium LO: 2

11. A company's acid-test ratio will always be less than or equal to its current ratio.

    Answer: True Level: Medium LO: 3

12. A company could improve its acid-test ratio by selling some equipment it no longer needs for cash.

    Answer: True Level: Medium LO: 3

13. As the accounts receivable turnover ratio decreases, the average collection period decreases.

    Answer: False Level: Medium LO: 3

14. Payment of interest owed would decrease the inventory turnover ratio.

    Answer: False Level: Easy LO: 3

15. When computing the times interest earned ratio, earnings before interest expense and income taxes is used in the numerator.

    Answer: True Level: Easy LO: 4

Multiple Choice Questions

16. The gross margin percentage is equal to:
    A) (Net operating income + Operating expenses)/Sales
    B) Net operating income/Sales
    C) Cost of goods sold/Sales
    D) Cost of goods sold/Net income

    Answer: A Level: Hard LO: 1

17. Earnings per share of common stock is computed by:
    A) dividing net income by the average number of common and preferred shares outstanding.
    B) dividing net income by the average number of common shares outstanding.
    C) dividing net income minus preferred dividends by the average number of common and preferred shares outstanding.
    D) dividing net income minus preferred dividends by the average number of common shares outstanding.

    Answer: D Level: Medium LO: 2

18. Which of the following is true regarding the calculation of return on total assets?
    A) The numerator of the ratio consists only of net income.
    B) The denominator of the ratio consists of the balance of total assets at the end of the period under consideration.
    C) The numerator of the ratio consists of net income plus interest expense times the tax rate.
    D) The numerator of the ratio consists of net income plus interest expense times one minus the tax rate.

    Answer: D Level: Easy LO: 2

19. Which of the following is not a source of financial leverage?
    A) Bonds payable.
    B) Accounts payable.
    C) Interest payable.
    D) Prepaid rent.

    Answer: D Level: Medium LO: 2

20. The book value per share of common is usually significantly different from the market value of the common stock because of:
    A) the omission of total assets from the numerator in the calculation of the book value per share.
    B) the use of the matching principle in preparing financial statements.
    C) the omission of the number of preferred shares outstanding in the calculation of the book value per share.
    D) the use of historical costs in preparing financial statements .

    Answer: D Level: Medium LO: 2 Source: CMA, adapted

21. Sale of a piece of equipment at book value for cash will:
    A) increase working capital.
    B) decrease the acid-test ratio.
    C) decrease the debt-to-equity ratio.
    D) increase net income.

    Answer: A Level: Medium LO: 3,4

22. A company's current ratio is greater than 1. Purchasing raw materials on credit would:
    A) increase the current ratio.
    B) decrease the current ratio.
    C) increase net working capital.
    D) decrease net working capital.

    Answer: B Level: Hard LO: 3 Source: CMA, adapted

23. Zack Company has a current ratio of 2.5. What will be the effect of a purchase of inventory with cash on the acid-test ratio and on working capital?

	Acid-test ratio	*Working Capital*
A)	decrease	decrease
B)	decrease	no effect
C)	no effect	decrease
D)	no effect	no effect

    Answer: B Level: Medium LO: 3

24. Solomon Company has a current ratio greater than 1 and an acid-test ratio less than 1. How would cash payments to suppliers to reduce accounts payable affect these ratios?

	Current ratio	*Quick ratio*
A)	Decreased	Decreased
B)	Decreased	Increased
C)	Increased	Decreased
D)	Increased	Increased

Answer: C Level: Hard LO: 3

25. Norton Inc. could improve its current ratio of 2 by:
A) paying a previously declared stock dividend.
B) writing off an uncollectible receivable.
C) selling merchandise on credit at a profit.
D) purchasing inventory on credit.

Answer: C Level: Hard LO: 3 Source: CMA, adapted

26. How is the average inventory used in the calculation of each of the following?

	Acid-test (quick) ratio	*Inventory turnover rate*
A)	Numerator	Numerator
B)	Numerator	Denominator
C)	Not used	Denominator
D)	Not used	Numerator

Answer: C Level: Medium LO: 3

27. Bernadette Company has an acid-test (quick) ratio of 2.0. This ratio would decrease if:
A) previously declared common stock dividends were paid.
B) the company collected an account receivable.
C) the company sold merchandise on open account that earned a normal gross margin.
D) the company purchased inventory on open account.

Answer: D Level: Medium LO: 3 Source: CMA, adapted

28. Sand Company has an acid-test ratio of 0.8. Which of the following actions would improve the acid-test ratio?
    A) Collect some accounts receivable.
    B) Acquire some inventory on account.
    C) Sell some equipment for cash.
    D) Use cash to pay off some accounts payable.

    Answer: C Level: Medium LO: 3

29. Assuming stable business conditions, a decrease in the accounts receivable turnover ratio could be explained by:
    A) an easing of policies with respect to the granting of credit to customers.
    B) stricter policies with respect to the granting of credit to customers.
    C) a speedup in collection of accounts from customers.
    D) none of these.

    Answer: A Level: Medium LO: 3

30. Accounts receivable turnover will normally decrease as a result of:
    A) the write-off of an uncollectible account against the allowance for bad debts.
    B) a significant sales volume decrease near the end of the accounting period.
    C) an increase in cash sales in proportion to credit sales.
    D) a change in credit policy to lengthen the period for cash discounts.

    Answer: D Level: Medium LO: 3

31. Stern Company has 100,000 shares of common stock and 20,000 shares of preferred stock outstanding. There was no change in the number of common or preferred shares outstanding during the year. Preferred stockholders received dividends totaling $140,000 during the year. Common stockholders received dividends totaling $210,000. If the dividend payout ratio was 70%, then the net income was:
    A) $200,000
    B) $300,000
    C) $500,000
    D) $440,000

    Answer: D Level: Hard LO: 2

32. The market price per share of Farren Co. stock at the beginning of the year was $60.00 and at the end of the year was $72.00. Net income for the year was $48,000. Dividends to the preferred stockholders for the year totaled $12,000, and dividends of $2.50 per share were paid on the 6,000 shares of common stock outstanding during the year. The price-earnings ratio at year end was:
A) 10
B) 6
C) 11
D) 12

Answer: D Level: Medium LO: 2

33. Fackrell Company has provided the following data:

Common stock:	
Shares outstanding	20,000
Market value, December 31	$150,000
Book value, December 31	$80,000
Dividends paid	$40,000
Preferred stock, 8%, 100 par	$100,000
Net income	$100,000
Interest on long-term debt	$10,000

The price-earnings ratio is closest to:
A) 1.50
B) 1.63
C) 2.50
D) 2.88

Answer: B Level: Medium LO: 2

34. Farrell Company has provided the following data:

Common stock:	
Shares outstanding	30,000
Market value, December 31	$165,000
Book value, December 31	$90,000
Dividends paid	$50,000
Preferred stock, 10%, $100 par	$100,000
Net income	$150,000
Interest on long-term debt	$15,000

The price-earnings ratio is closest to:
A) 1.10
B) 1.18
C) 1.65
D) 1.83

Answer: B Level: Medium LO: 2

35. Cammer Company has 40,000 shares of common stock outstanding. The following data pertain to these shares for the most recent year:

Price originally issued	$25 per share
Book value, December 31	$40 per share
Market value, January 1	$50 per share
Market value, December 31	$60 per share

The total dividend on common stock was $480,000. Cammer Company's dividend yield ratio for the year was:
A) 24%
B) 20%
C) 48%
D) 30%

Answer: B Level: Medium LO: 2

36. Cameron Company has 40,000 shares of common stock outstanding that it originally issued for $30 per share. The following data pertains to these shares for the most recent year:

Book value, December 31	$60 per share
Market value, January 1	$75 per share
Market value, December 31	$80 per share

The total dividend on common stock was $360,000. The dividend yield ratio for the year was:
A) 11.25%
B) 12.00%
C) 15.00%
D) 30.00%

Answer: A Level: Medium LO: 2

37. Tribble Company has provided the following data:

Sales	$5,000,000
Interest expense	$30,000
Total assets, beginning of year	$185,000
Total assets, end of year	$215,000
Tax rate	30%
Return on total assets	15.5%

Tribble Company's net income was:
A) $1,000
B) $10,000
C) $22,000
D) $31,000

Answer: B Level: Hard LO: 2

38. Jense Company's return on common stockholders' equity is 16%. Midtown Bank has offered a $100,000 loan at an annual interest rate of 14%. Jense currently has 50,000 shares of common stock and 10,000 shares of 8% preferred stock outstanding. The financial leverage of the loan would be:
    A) positive.
    B) negative.
    C) neither positive nor negative.
    D) cannot be determined with the data given.

    Answer: A Level: Easy LO: 2

39. If a company can borrow at an interest rate of 8%, the tax rate is 30%, and the company's assets are generating an after-tax return of 7%, then financial leverage is:
    A) positive.
    B) negative.
    C) neither positive nor negative.
    D) impossible to determine without knowing the return on common stockholders' equity.

    Answer: A Level: Medium LO: 2

40. The following account balances have been provided for the end of the most recent year:

Total assets	$1,000,000
Total liabilities	$400,000
Total stockholders' equity	$600,000
Common stock (40,000 shares)	$300,000
Preferred stock (10,000 shares)	$100,000

    The common stock's book value per share is:
    A) $22.50
    B) $12.50
    C) $20.00
    D) $12.00

    Answer: B Level: Medium LO: 2

41. Nybo Company's current liabilities are $60,000, its long-term liabilities are $180,000, and its working capital is $90,000. If Nybo Company's debt to equity ratio is 0.4, its total long-term assets must equal:
A) $490,000
B) $840,000
C) $600,000
D) $690,000

Answer: D Level: Hard LO: 3,4

42. Nelson Company's current liabilities are $50,000, its long-term liabilities are $150,000, and its working capital is $80,000. If Nelson Company's debt-to-equity ratio is 0.32, its total long-term assets must equal:
A) $625,000
B) $745,000
C) $825,000
D) $695,000

Answer: D Level: Hard LO: 3,4

43. Selected data from Perry Corporation's financial statements follow:

Current ratio	2.0
Acid-test ratio	1.5
Current liabilities	$120,000
Inventory turnover	8
Gross profit margin as a percentage of sales	40%

The company has no prepaid expenses and there were no changes in inventories during the year. Perry Corporation's net sales for the year were:
A) $800,000
B) $480,000
C) $1,200,000
D) $240,000

Answer: A Level: Hard LO: 3 Source: CMA, adapted

44. Mattick Company has provided the following data:

Inventory and prepaid expenses	$36,000
Current ratio	2.4
Acid-test ratio	1.6

Mattick Company's current liabilities are:
A) $60,000
B) $30,000
C) $45,000
D) $48,000

Answer: C Level: Hard LO: 3

45. The Seabury Company has a current ratio of 3.5 and an acid-test ratio of 2.8. Inventory equals $49,000 and there are no prepaid expenses. Seabury Company's current liabilities must be:
A) $70,000
B) $100,000
C) $49,000
D) $125,000

Answer: A Level: Hard LO: 3

46. Matlock Company has provided the following data:

Inventory and prepaid expenses	$35,000
Current ratio	2.2
Acid-test Ratio	1.5

Matlock Company's current liabilities were:
A) $40,000
B) $50,000
C) $63,000
D) $44,100

Answer: B Level: Hard LO: 3

47. A company's current ratio is 2. According to the fine print in its bond agreements, the company cannot allow its current ratio to fall below 1.5 without defaulting on the debt and going into bankruptcy. If current liabilities are $200,000, what is the maximum amount of additional new short-term debt the company can take on without defaulting if the new debt is used to finance new current assets?
A) $200,000
B) $66,667
C) $266,667
D) $150,000

Answer: A Level: Hard LO: 3 Source: CMA, adapted

48. Windham Company has current assets of $400,000 and current liabilities of $500,000. Windham Company's current ratio would be increased by:
A) the purchase of $100,000 of inventory on account.
B) the payment of $100,000 of accounts payable.
C) the collection of $100,000 of accounts receivable.
D) refinancing a $100,000 long-term loan with short-term debt.

Answer: A Level: Medium LO: 3 Source: CMA, adapted

49. The Carney, Inc. has sales of $5 million per year (all credit) and an average collection period of 35 days. What is its average amount of accounts receivable outstanding?
A) $479,452
B) $142,857
C) $150,000
D) $500,000

Answer: A Level: Hard LO: 3

50. Peavey Company's accounts receivable were $430,000 at the beginning of the year and $480,000 at the end of the year. Cash sales were $175,000 for the year. The accounts receivable turnover was 5. Peavey Company's total sales for the year were:
A) $3,150,000
B) $2,450,000
C) $2,275,000
D) $2,575,000

Answer: B Level: Hard LO: 3 Source: CPA, adapted

51. The accounts receivable for Note Company was $240,000 at the beginning of the year and $260,000 at the end of the year. If the accounts receivable turnover for the year was 8 and 20% of the total sales were cash sales, the total sales for the year were:
A) $2,600,000
B) $2,000,000
C) $2,400,000
D) $2,500,000

Answer: D Level: Hard LO: 3

52. The accounts receivable for Allegro Company was $140,000 at the beginning of the year and $180,000 at the end of the year. The accounts receivable turnover for the year was 8.5 and 15% of total sales were cash sales. The total sales for the year were:
A) $1,400,000
B) $1,360,000
C) $1,600,000
D) $1,800,000

Answer: C Level: Hard LO: 3

53. Last year Chatham Company purchased $500,000 of inventory. The cost of goods sold was $550,000 and the ending inventory was $100,000. The inventory turnover for the year was:
A) 4.0
B) 4.4
C) 5.5
D) 11.0

Answer: B Level: Hard LO: 3

54. Last year Truro Company purchased $800,000 of inventory. The cost of goods sold was $750,000 and the ending inventory was $125,000. The inventory turnover for the year was:
A) 6.0
B) 7.5
C) 6.4
D) 8.0

Answer: B Level: Hard LO: 3

55. Last year Jungo Company purchased $550,000 of inventory. The inventory balance at the beginning of the year was $200,000 and the cost of goods sold was $650,000. The inventory turnover was closest to:
A) 6.50
B) 4.33
C) 3.67
D) 3.25

Answer: B Level: Hard LO: 3

56. The following information is available for Weston Company:

	Year 2	*Year 1*
Sales	$1,800,000	$1,400,000
Inventory, year-end	$210,000	$190,000
Bad debt expense	$10,000	$12,000
Cost of goods sold	$920,000	$840,000

The inventory turnover for Year 2 is:
A) 4.4
B) 4.6
C) 9.0
D) 8.0

Answer: B Level: Medium LO: 3 Source: CMA, adapted

57. Selected information from the accounting records of Kay Company for the most recent year follow:

Net sales	$1,800,000
Cost of goods sold	$1,200,000
Inventory, beginning	$360,000
Inventory, ending	$312,000

Kay's inventory turnover for the year is closest to:
A) 3.57
B) 3.85
C) 5.36
D) 5.77

Answer: A Level: Medium LO: 3 Source: CPA, adapted

58. Last year James Company purchased $400,000 of inventory. The inventory balance at the beginning of the year was $150,000 and the cost of goods sold for the year was $425,000. The inventory turnover for the year was:
A) 2.83
B) 2.91
C) 3.09
D) 3.40

Answer: C Level: Hard LO: 3

59. Spotech Co.'s budgeted sales and budgeted cost of sales for the coming year are $212,000,000 and $132,500,000 respectively. Short-term interest rates are expected to be 5%. Assume that all inventory must be financed with short-term debt. If Spotech could increase inventory turnover from its current 8 times per year to 10 times per year, its expected interest cost savings in the current year would be:
A) $165,625
B) $0
C) $331,250
D) $81,812

Answer: A Level: Hard LO: 3 Source: CMA, adapted

60. Neelty Corporation has interest expense of $16,000, sales of $600,000, a tax rate of 30%, and after-tax net income of $56,000. What is the firm's times interest earned ratio?
A) 6.0
B) 5.0
C) 4.5
D) 3.5

Answer: A Level: Hard LO: 4

61. K.T. Company has sales of $400,000, interest expense of $12,000, a tax rate of 40%, and after-tax net income of $50,400. K.T. Company's times interest earned ratio is closest to:
A) 4.2
B) 11.5
C) 5.2
D) 8.0

Answer: D Level: Hard LO: 4

62. Whitney Company has a times interest earned ratio of 3.0. The company's tax rate is 40% and its interest expense is $21,000. The company's after-tax net income is closest to:
A) $63,000
B) $25,200
C) $21,000
D) $42,000

Answer: B Level: Hard LO: 4

63. KMT Company has sales of $200,000, interest expense of $6,000, a tax rate of 40%, and after-tax net income of $30,000. KMT Company's times interest earned ratio is closest to:
A) 5.0
B) 6.0
C) 9.3
D) 13.5

Answer: C Level: Hard LO: 4

64. Houston Company has a times interest earned ratio of 2.5. The company's tax rate is 40% and its interest expense is $20,000. The company's after-tax net income is:
A) $50,000
B) $20,000
C) $30,000
D) $18,000

Answer: D Level: Hard LO: 4

65. Falmouth Company's debt to equity ratio is 0.6. Current liabilities are $120,000, long term liabilities are $360,000, and working capital is $140,000. Total assets of the company must be:
A) $600,000
B) $1,200,000
C) $800,000
D) $1,280,000

Answer: D Level: Hard LO: 4

Use the following to answer questions 66-76:

The following data pertain to Cerveza Corporation.

CERVEZA CORPORATION
Comparative Income Statement

	This Year	*Last Year*
Sales (all on account)	$452,000	$388,000
Less cost of goods sold	260,000	221,000
Gross margin	192,000	167,000
Less operating expenses	104,000	89,000
Net operating income	88,000	78,000
Less interest expense	8,000	8,000
Net income before taxes	80,000	70,000
Less income taxes (30%)	24,000	21,000
Net income	$ 56,000	$ 49,000

CERVEZA CORPORATION
Comparative Balance Sheet

	This Year	*Last Year*
Assets		
Current assets:		
Cash	$ 42,000	$ 21,000
Marketable securities	32,000	28,000
Accounts receivable, net	84,000	102,000
Inventory	96,000	70,000
Prepaid expenses	11,000	9,000
Total current assets	265,000	230,000
Plant and equipment, net	410,000	380,000
Total assets	$675,000	$610,000
Liabilities and Stockholders' Equity		
Liabilities:		
Current liabilities	$115,000	$ 90,000
Bonds payable, 10%	80,000	80,000
Total liabilities	195,000	170,000
Stockholders' equity:		
Preferred stock, $100 par, 7%	100,000	100,000
Common stock, $5 par	300,000	300,000
Retained earnings	80,000	40,000
Total stockholders' equity	480,000	440,000
Total liabilities and stockholders' equity	$675,000	$610,000

Additional information:

* In addition to the preferred dividends, dividends of $0.15 per share were declared and paid on the common stock this year.

66. If a vertical analysis was done on Cerveza's financial statements, what percent would be shown for retained earnings at the end of this year? (rounded if necessary)
    A) 9.3%
    B) 11.9%
    C) 16.7%
    D) 17.7%

    Answer: B Level: Medium LO: 1

67. What is Cerveza's dividend payout ratio for this year? (rounded if necessary)
    A) 18.4%
    B) 3.0%
    C) 11.2%
    D) 16.1%

    Answer: A Level: Hard LO: 2

68. What is Cerveza's return on total assets for this year? (rounded if necessary)
    A) 7.3%
    B) 7.6%
    C) 8.7%
    D) 9.6%

    Answer: D Level: Medium LO: 2

69. What is Cerveza's return on common stockholders' equity for this year? (rounded if necessary)
    A) 12.9%
    B) 13.6%
    C) 15.6%
    D) 16.2%

    Answer: B Level: Medium LO: 2

70. What is Cerveza's book value per share at the end of this year? (rounded if necessary)
A) $6.00 per share
B) $6.33 per share
C) $7.67 per share
D) $8.00 per share

Answer: B Level: Medium LO: 2

71. What is Cerveza's current ratio at the end of this year? (rounded if necessary)
A) 1.36
B) 1.77
C) 2.30
D) 2.41

Answer: C Level: Medium LO: 3

72. What is Cerveza's acid-test ratio at the end of this year? (rounded if necessary)
A) 0.64
B) 0.77
C) 0.81
D) 1.37

Answer: D Level: Medium LO: 3

73. What is Cerveza's average collection period (accounts receivable turnover in days) for this year? (rounded if necessary)
A) 67.8 days
B) 75.1 days
C) 80.8 days
D) 117.9 days

Answer: B Level: Medium LO: 3

74. What is Cerveza's average sale period (inventory turnover in days) for this year? (rounded if necessary)
A) 67.0 days
B) 116.5 days
C) 126.0 days
D) 134.8 days

Answer: B Level: Medium LO: 3

75. What is Cerveza's times interest earned ratio for this year?
    A) 6.125
    B) 7
    C) 10
    D) 11

    Answer: D Level: Medium LO: 4

76. What is Cerveza's debt-to-equity ratio at the end of this year? (rounded if necessary)
    A) 0.24
    B) 0.29
    C) 0.41
    D) 0.51

    Answer: C Level: Medium LO: 4

Use the following to answer questions 77-80:

Parsons Company's sales and current assets have been reported as follows over the last four years:

	Year 4	*Year 3*	*Year 2*	*Year 1*
Sales	$800,000	$700,000	$600,000	$570,000
Cash	$35,000	$30,000	$24,000	$18,000
Accounts Receivable	$75,000	$50,000	$58,000	$45,000
Inventory	$78,000	$75,000	$80,000	$75,000
Prepaid Expenses	$47,000	$39,000	$11,000	$25,000
Total Current Assets	$235,000	$194,000	$173,000	$163,000

77. Suppose that Parsons Company employs trend percentages to analyze performance with Year 2 as the base year. Cash for Year 3 expressed as a trend percentage would be closet to:
    A) 167%
    B) 133%
    C) 120%
    D) 125%

    Answer: D Level: Easy LO: 1

78. Suppose that Parsons Company employs trend percentages to analyze performance with Year 1 as the base year. Sales for Year 4 expressed as a trend percentage would be closest to:
A) 140%
B) 114%
C) 71%
D) 133%

Answer: A Level: Easy LO: 1

79. Suppose that Parsons Company employs trend percentages to analyze performance with Year 2 as the base year. Inventory for Year 3 expressed as a trend percentage would be closest to:
A) 40%
B) 94%
C) 100%
D) 107%

Answer: B Level: Easy LO: 1

80. Suppose that Parsons Company employs common size statements to analyze changes in current assets. The increase or decrease in the Prepaid Expenses account when Year 4 is compared to Year 3 would be closest to:
A) 254% increase
B) 20.5% decrease
C) 20.5% increase
D) 254% decrease

Answer: C Level: Easy LO: 1

Use the following to answer questions 81-83:

Selected financial data from Harmon Company from the most recent year appear below:

Sales	$150,000
Cost of goods sold	$75,000
Dividend declared and paid	$5,000
Interest expense	$10,000
Operating expenses	$25,000

The income tax rate is 30%.

81. Net operating income as a percentage of sales is closest to:
    A) 50%
    B) 27%
    C) 19%
    D) 33%

    Answer: D Level: Easy LO: 1

82. Net income as a percentage of sales is closest to:
    A) 19%
    B) 27%
    C) 33%
    D) 50%

    Answer: A Level: Easy LO: 1

83. Gross margin as a percentage of sales is closest to:
    A) 27%
    B) 50%
    C) 33%
    D) 19%

    Answer: B Level: Easy LO: 1

Use the following to answer questions 84-90:

Financial statements for Orach Company appear below:

Orach Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 180	$ 160
Accounts receivable, net	190	180
Inventory	110	110
Prepaid expenses	70	70
Total current assets	550	520
Noncurrent assets:		
Plant & equipment, net	1,350	1,350
Total assets	$1,900	$1,870
Current liabilities:		
Accounts payable	$ 100	$ 140
Accrued liabilities	10	40
Notes payable, short term	110	130
Total current liabilities	220	310
Noncurrent liabilities:		
Bonds payable	400	400
Total liabilities	620	710
Stockholders' equity:		
Preferred stock, $10 par, 10%	120	120
Common stock, $20 par	220	220
Additional paid-in capital--common stock	240	240
Retained earnings	700	580
Total stockholders' equity	1,280	1,160
Total liabilities & stockholders' equity	$1,900	$1,870

Orach Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$2,750
Cost of goods sold	1,920
Gross margin	830
Operating expenses	330
Net operating income	500
Interest expense	40
Net income before taxes	460
Income taxes (30%)	138
Net income	$ 322

Dividends during Year 2 totaled $202 thousand, of which $12 thousand were preferred dividends.

The market price of a share of common stock on December 31, Year 2 was $400.

84. Orach Company's earnings per share of common stock for Year 2 was closest to:
A) $3.26
B) $41.82
C) $29.27
D) $28.18

Answer: D Level: Medium LO: 2

85. Orach Company's dividend yield ratio on December 31, Year 2 was closest to:
A) 4.0%
B) 4.6%
C) 4.3%
D) 0.5%

Answer: C Level: Medium LO: 2

86. Orach Company's return on total assets for Year 2 was closest to:
A) 15.6%
B) 18.6%
C) 17.7%
D) 17.1%

Answer: B Level: Medium LO: 2

87. Orach Company's current ratio at the end of Year 2 was closest to:
    A) 2.50
    B) 1.29
    C) 0.35
    D) 0.44

    Answer: A Level: Medium LO: 3

88. Orach Company's accounts receivable turnover for Year 2 was closest to:
    A) 17.5
    B) 10.4
    C) 25.0
    D) 14.9

    Answer: D Level: Medium LO: 3

89. Orach Company's average sale period (turnover in days) for Year 2 was closest to:
    A) 35.2 days
    B) 20.9 days
    C) 14.6 days
    D) 24.6 days

    Answer: B Level: Medium LO: 3

90. Orach Company's times interest earned for Year 2 was closest to:
    A) 12.5
    B) 11.5
    C) 8.1
    D) 20.8

    Answer: A Level: Medium LO: 3

Use the following to answer questions 91-94:

Drivon Corporation uses a calendar year for financial reporting purposes. Condensed financial statements for a recent year are reproduced below.

Drivon Corporation
Income Statement
For the Year Ended December 31
$(000 omitted)

Sales	$1,200
Cost of goods sold	700
Gross margin	500
Operating expenses	250
Net operating income	250
Interest expense	50
Net income before taxes	200
Income taxes	100
Net income	$ 100

Drivon Corporation
Statement of Financial Position
December 31
$(000 omitted)

Cash	$ 100
Marketable securities	150
Accounts receivable	200
Inventories	400
Prepaid expenses	50
Property, plant, & equipment, net	530
Patents	70
Total assets	$1,500
Accounts payable	$ 120
Short-term note	180
Wages payable	100
Long-term bonds payable	400
Preferred stock, par	200
Common stock, par	200
Additional paid-in capital--common stock	100
Retained earnings	200
Total liabilities and equities	$1,500

The Accounts Receivable balance at the beginning of the year was $180,000. Total assets at the beginning of the year were $1,300,000. Preferred dividends during the year were $16,000. Total common stockholders' equity at the beginning of the year was $500,000.

91. Drivon's current ratio at the end of the year was closest to:
    A) 2.25
    B) 2.125
    C) 1.75
    D) 1.125

    Answer: A Level: Medium LO: 3 Source: CMA, adapted

92. Drivon's return on total assets for the year was closest to:
    A) 16.7%
    B) 13.3%
    C) 8.9%
    D) 6.7%

    Answer: C Level: Medium LO: 2 Source: CMA, adapted

93. Drivon's return on common stockholders' equity for the year was closest to:
    A) 25.0%
    B) 22.2%
    C) 20.0%
    D) 16.8%

    Answer: D Level: Medium LO: 2 Source: CMA, adapted

94. Drivon's times interest earned ratio for the year was closest to:
    A) 2
    B) 3
    C) 5
    D) 10

    Answer: C Level: Medium LO: 4 Source: CMA, adapted

Use the following to answer questions 95-99:

Financial statements for Norman Company are presented below:

Norman Company
Balance Sheet
As of December 31

	Year 2	*Year 1*
Cash	$ 45,000	$ 30,000
Accounts receivable (net)	38,000	40,000
Inventory	67,000	60,000
Long-term investments	162,000	150,000
Land	128,000	100,000
Building (net)	98,000	50,000
Total assets	$538,000	$430,000
Accounts payable	$ 36,000	$ 40,000
Notes payable, short-term	24,000	30,000
Bonds payable	35,000	50,000
Mortgage payable	100,000	0
Preferred stock, 12%	100,000	100,000
Common stock	195,000	170,000
Retained earnings	48,000	40,000
Total liabilities & owners' equity	$538,000	$430,000

Norman Company
Income Statement
For the Year Ended December 31, Year 2

Sales	$145,000
Cost of goods sold	74,000
Gross margin	71,000
Operating expense	11,000
Net operating income	60,000
Interest expense	5,000
Net income before taxes	55,000
Income taxes (40%)	22,000
Net income	$ 33,000

Dividends were $25,000 for the year, of which $12,000 were for preferred stocks.

95. Assume all sales were on account. Norman Company's accounts receivable turnover for Year 2 was closest to:
A) 3.7
B) 3.8
C) 3.6
D) 1.9

Answer: A Level: Medium LO: 3

96. Norman Company's average sale period (turnover in days) for Year 2 was closest to:
A) 326 days
B) 296 days
C) 330 days
D) 313 days

Answer: D Level: Medium LO: 3

97. Norman Company's return on total assets for Year 2 was closest to:
A) 8.37%
B) 6.69%
C) 7.44%
D) 6.82%

Answer: C Level: Medium LO: 2

98. Norman Company's debt-to-equity ratio for Year 2 was closest to:
A) 0.66
B) 0.57
C) 0.60
D) 0.28

Answer: B Level: Medium LO: 4

99. Norman Company's times interest earned ratio for Year 2 was closest to:
A) 15.2
B) 12.0
C) 14.2
D) 11.0

Answer: B Level: Medium LO: 4

Use the following to answer questions 100-105:

Financial statements of Sawyer Corporation are reproduced below. The market price of Sawyer's common stock was $20 per share on November 30, Year 2.

Sawyer Corporation
Statement of Financial Position
As of November 30
(in thousands)

	Year 2	*Year 1*
Cash	$ 3,000	$ 2,000
Short-term marketable securities	1,000	1,000
Accounts receivable (net)	14,000	11,000
Merchandise inventory	24,000	16,000
Total current assets	42,000	30,000
Property, plant, and equipment (net)	68,000	60,000
Long-term investments	10,000	10,000
Total assets	$120,000	$100,000
Accounts payable	$ 5,000	$ 4,000
Wages payable	1,000	1,000
Total current liabilities	6,000	5,000
Bonds payable, 10%	20,000	20,000
Total liabilities	26,000	25,000
Common stock, no par, 10,000,000 shares	25,000	25,000
Retained earnings	69,000	50,000
Total stockholders' equity	94,000	75,000
Total liabilities and stockholders' equity	$120,000	$100,000

Sawyer Corporation
Statement of Income
For the Year Ended November 30, Year 2
(in thousands)

Sales (all on credit)	$200,000
Cost of goods sold	120,000
Gross margin	80,000
Operating expenses	38,000
Net operating income	42,000
Interest expense	2,000
Net income before income taxes	40,000
Income tax expense	15,000
Net income	$ 25,000

100. Sawyer Corporation's current ratio as of November 30, Year 2, is closest to:
A) 7
B) 6
C) 5
D) 3

Answer: A Level: Medium LO: 3 Source: CMA, adapted

101. Sawyer Corporation's acid-test (quick) ratio as of November 30, Year 2, is closest to:
A) 2.8
B) 3
C) 7
D) 4

Answer: B Level: Medium LO: 3 Source: CMA, adapted

102. Sawyer Corporation's accounts receivable turnover for the year ended November 30, Year 2, is closest to:
A) 18.2
B) 14.3
C) 9.6
D) 16.0

Answer: D Level: Medium LO: 3 Source: CMA, adapted

103. Sawyer Corporation's merchandise inventory turnover for the year ended November 30, Year 2, is closest to:
A) 10
B) 5
C) 6
D) 4

Answer: C Level: Medium LO: 3 Source: CMA, adapted

104. Sawyer Corporation's times interest earned for the year ended November 30, Year 2, is closest to:
A) 21
B) 12.5
C) 20
D) 15

Answer: A Level: Medium LO: 4 Source: CMA, adapted

105. Sawyer Corporation's return on stockholders' equity for the year ended November 30, Year 2, is closest to:
A) 12.50%
B) 22.73%
C) 24.00%
D) 29.59%

Answer: D Level: Medium LO: 2 Source: CMA, adapted

Use the following to answer questions 106-108:

Financial statements for Tervot Company appear below:

TERVOT COMPANY
Balance Sheet
As of December 31

	Year 2	*Year 1*
Current Assets	$ 216,000	$ 175,000
Long Term Investments	264,000	275,000
Plant, Property, and Equipment (net)	1,200,000	1,050,000
Total Assets	$1,680,000	$1,500,000
Current Liabilities	$ 264,000	$ 200,000
Bonds Payable	336,000	250,000
Preferred Stock (par value $100, 12%)	200,000	200,000
Common Stock (par value $15)	600,000	600,000
Additional Paid-In Capital-Common Stock	100,000	100,000
Retained Earnings	180,000	150,000
Total Liabilities and Equities	$1,680,000	$1,500,000

TERVOT COMPANY
Income Statement
For the Year Ended December 31, Year 2

Sales	$800 000
Cost of Goods Sold	460,000
Gross Margin	340,000
Operating Expense	176,000
Net Operating Income	164,000
Interest Expense	14,000
Net Income Before Taxes	150,000
Income Taxes (40%)	60,000
Net Income	$ 90,000

Dividends were $60,000 for the year, of which $24,000 were for preferred stocks.

106. Tervot Company's return on total assets for Year 2 was closest to:
A) 6.19%
B) 5.66%
C) 5.86%
D) 6.01%

Answer: A Level: Medium LO: 2

107. Tervot Company's times interest earned ratio for Year 2 was closest to:
A) 10.71
B) 7.43
C) 11.71
D) 17.86

Answer: C Level: Medium LO: 4

108. Tervot Company's debt-to-equity ratio for Year 2 was closest to:
A) 0.36
B) 0.91
C) 0.49
D) 0.56

Answer: D Level: Medium LO: 4

Use the following to answer questions 109-115:

Financial statements for Larabee Company appear below:

Larabee Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 180	$ 160
Accounts receivable, net	190	160
Inventory	150	160
Prepaid expenses	20	20
Total current assets	540	500
Noncurrent assets:		
Plant & equipment, net	1,680	1,640
Total assets	$2,220	$2,140
Current liabilities:		
Accounts payable	$ 110	$ 140
Accrued liabilities	50	80
Notes payable, short term	60	100
Total current liabilities	220	320
Noncurrent liabilities:		
Bonds payable	350	400
Total liabilities	570	720
Stockholders' equity:		
Preferred stock, $20 par, 10%	120	120
Common stock, $10 par	180	180
Additional paid-in capital--common stock	280	280
Retained earnings	1,070	840
Total stockholders' equity	1,650	1,420
Total liabilities & stockholders' equity	$2,220	$2,140

Larabee Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$2,610
Cost of goods sold	1,820
Gross margin	790
Operating expenses	310
Net operating income	480
Interest expense	40
Net income before taxes	440
Income taxes (30%)	132
Net income	$ 308

Dividends during Year 2 totaled $78 thousand, of which $12 thousand were preferred dividends. The market price of a share of common stock on December 31, Year 2 was $150.

109. Larabee Company's earnings per share of common stock for Year 2 was closest to:
A) $17.11
B) $16.44
C) $24.44
D) $9.87

Answer: B Level: Medium LO: 2

110. Larabee Company's price-earnings ratio on December 31, Year 2 was closest to:
A) 8.77
B) 6.14
C) 9.12
D) 15.20

Answer: C Level: Medium LO: 2

111. Larabee Company's dividend payout ratio for Year 2 was closest to:
A) 13.8%
B) 25.3%
C) 8.4%
D) 22.3%

Answer: D Level: Medium LO: 2

112. Larabee Company's dividend yield ratio on December 31, Year 2 was closest to:
A) 2.0%
B) 2.4%
C) 1.7%
D) 2.9%

Answer: B Level: Medium LO: 2

113. Larabee Company's return on total assets for Year 2 was closest to:
A) 12.8%
B) 15.4%
C) 14.7%
D) 14.1%

Answer: B Level: Medium LO: 2

114. Larabee Company's return on common stockholders' equity for Year 2 was closest to:
A) 19.3%
B) 21.8%
C) 20.9%
D) 20.1%

Answer: C Level: Medium LO: 2

115. Larabee Company's book value per share at the end of Year 2 was closest to:
A) $91.67
B) $85.00
C) $25.56
D) $10.00

Answer: B Level: Medium LO: 2

Use the following to answer questions 116-120:

Selected data for Marton Company follow:

	Year 2	*Year 1*
Preferred stock, par value $50, 10%	$100,000	$100,000
Common stock, par value $20	$400,000	$400,000
Additional paid-in capital--common stock	$100,000	$100,000
Retained earnings	$140,000	$120,000
Net income	$80,000	$60,000
Dividends on preferred stock	$10,000	$10,000
Dividends on common stock	$50,000	$40,000
Market price per share, Dec 31	$28.00	$21.00

116. Martin Company's price-earnings ratio for Year 1 was closest to:
A) 42.0
B) 7.0
C) 8.4
D) 11.2

Answer: C Level: Medium LO: 2

117. Martin Company's dividend yield ratio for Year 2 was closest to:
A) 8.9%
B) 12.5%
C) 28.6%
D) 10.7%

Answer: A Level: Medium LO: 2

118. Martin Company's dividend payout ratio for Year 1 was closest to:
A) 125%
B) 20%
C) 100%
D) 80%

Answer: D Level: Medium LO: 2

119. Marton Company's return on common stockholders' equity for Year 2 was closest to:
A) 11.1%
B) 12.7%
C) 10.6%
D) 9.6%

Answer: A Level: Medium LO: 2

120. Marton Company's book value per share for Year 2 was closest to:
A) $37.00
B) $33.64
C) $32.00
D) $36.50

Answer: C Level: Medium LO: 2

Use the following to answer questions 121-125:

Selected data for Berrett Company follow:

	Year 2	*Year 1*
Preferred stock, par value $40, 8%	$200,000	$200,000
Common sock, par value $10	$500,000	$500,000
Additional paid-in capital--common stock	$100,000	$100,000
Retained earnings	$200,000	$140,000
Net income	$100,000	$80,000
Dividends on preferred stock	$16,000	$16,000
Dividends on common stock	$62,500	$50,000
Market price per share, end of year	$25.00	$19.20

121. The price-earnings ratio for Year 1 was closest to:
A) 15.0
B) 12.0
C) 13.2
D) 16.6

Answer: A Level: Medium LO: 2

122. The dividend yield ratio on common stock for Year 2 was closest to:
A) 6.7%
B) 6.3%
C) 5.0%
D) 7.3%

Answer: C Level: Medium LO: 2

123. Berrett Company's return on common stockholders' equity for Year 2 was closest to:
A) 10.3%
B) 10.9%
C) 13.0%
D) 8.7%

Answer: B Level: Medium LO: 2

124. The dividend payout ratio for Year 1 was closest to:
A) 78.125%
B) 103.125%
C) 128.000%
D) 62.500%

Answer: A Level: Medium LO: 2

125. The book value per share for Year 2 was closest to:
A) $22.00
B) $18.18
C) $20.00
D) $16.00

Answer: D Level: Medium LO: 2

Use the following to answer questions 126-130:

Selected data (in thousands of dollars) from Ostrander Corporation's financial statements are presented below:

Balance Sheet Data:

	Year 2	*Year 1*
Cash	$32	$28
Marketable securities	$169	$172
Accounts receivable (net)	$210	$204
Merchandise inventory	$440	$420
Equipment (net)	$480	$440
Total assets	$1,397	$1,320
Current liabilities	$370	$368
Total liabilities	$790	$750
Common stock outstanding	$226	$210
Retained earnings	$381	$360

Income Statement Data:

	Year 2
Sales (all on account)	$4,175
Cost of goods sold	$2,880
Interest expense	$50
Income tax	$120
Net income	$175

126. Ostrander Corporation's acid-test (quick) ratio for Year 2 is closest to:
A) 1.73
B) 1.87
C) 1.11
D) 0.54

Answer: C Level: Medium LO: 3 Source: CMA, adapted

127. Ostrander Corporation's inventory turnover for Year 2 is closest to:
A) 6.54
B) 6.69
C) 6.85
D) 9.70

Answer: B Level: Medium LO: 3 Source: CMA, adapted

128. Ostrander Corporation's average collection period (age of receivables) for Year 2 is closest to:
A) 18.10 days
B) 26.61 days
C) 17.83 days
D) 18.36 days

Answer: A Level: Medium LO: 3 Source: CMA, adapted

129. Ostrander Corporation's times interest earned for Year 2 is closest to:
A) 4.50
B) 7.70
C) 3.50
D) 6.90

Answer: D Level: Medium LO: 4 Source: CMA, adapted

130. Ostrander Corporation's debt-to-equity ratio at the end of Year 2 is closest to:
A) 3.49
B) 1.85
C) 2.07
D) 1.30

Answer: D Level: Medium LO: 4 Source: CMA, adapted

Use the following to answer questions 131-137:

Financial statements for Maraby Company appear below:

Maraby Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 220	$ 190
Accounts receivable, net	190	160
Inventory	140	150
Prepaid expenses	70	80
Total current assets	620	580
Noncurrent assets:		
Plant & equipment, net	1,180	1,150
Total assets	$1,800	$1,730
Current liabilities:		
Accounts payable	$ 100	$ 120
Accrued liabilities	100	70
Notes payable, short term	160	160
Total current liabilities	360	350
Noncurrent liabilities:		
Bonds payable	450	500
Total liabilities	810	850
Stockholders' equity:		
Preferred stock, $10 par, 8%	100	100
Common stock, $5 par	160	160
Additional paid-in capital--common stock	100	100
Retained earnings	630	520
Total stockholders' equity	990	880
Total liabilities & stockholders' equity	$1,800	$1,730

Maraby Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$1,960
Cost of goods sold	1,370
Gross margin	590
Operating expenses	230
Net operating income	360
Interest expense	50
Net income before taxes	310
Income taxes (30%)	93
Net income	$ 217

131. Maraby Company's working capital (in thousands of dollars) at the end of Year 2 was closest to:
A) $260
B) $620
C) $360
D) $990

Answer: A Level: Medium LO: 3

132. Maraby Company's current ratio at the end of Year 2 was closest to:
A) 1.34
B) 1.72
C) 0.60
D) 0.44

Answer: B Level: Medium LO: 3

133. Maraby Company's acid-test (quick) ratio at the end of Year 2 was closest to:
A) 0.51
B) 0.47
C) 1.14
D) 1.95

Answer: C Level: Medium LO: 3

134. Maraby Company's accounts receivable turnover for Year 2 was closest to:
A) 13.5
B) 7.8
C) 11.2
D) 9.4

Answer: C Level: Medium LO: 3

135. Maraby Company's average collection period (age of receivables) for Year 2 was closest to:
A) 38.6 days
B) 46.6 days
C) 32.6 days
D) 27.0 days

Answer: C Level: Medium LO: 3

136. Maraby Company's inventory turnover for Year 2 was closest to:
A) 11.2
B) 7.8
C) 9.4
D) 13.5

Answer: C Level: Medium LO: 3

137. Maraby Company's average sale period (turnover in days) for Year 2 was closest to:
A) 38.6 days
B) 32.6 days
C) 46.6 days
D) 27.0 days

Answer: A Level: Medium LO: 3

Use the following to answer questions 138-140:

Nydock Company had the following selected account balances on December 31:

Cash	$12,000
Accounts Payable	$18,000
Building and Equipment	$80,000
Retained Earnings	$40,000
Marketable Securities	$3,000
Accrued Short-Term Payables	$12,000
Accounts Receivable	$15,000
Prepaid Expenses	$9,000
Bonds Payable	$7,500
Inventory	$6,000

138. At December 31, Nydock Company's working capital was:
A) $15,000
B) $7,500
C) $27,000
D) $33,000

Answer: A Level: Medium LO: 3

139. At December 31, Nydock Company's acid-test (quick) ratio was closest to:
A) 1
B) 2.5
C) 1.67
D) 1.5

Answer: A Level: Medium LO: 3

140. At December 31, Nydock Company's current ratio was closest to:
A) 3.3
B) 1.2
C) 1.5
D) 2.5

Answer: C Level: Medium LO: 3

Use the following to answer questions 141-143:

Knighton Company had the following selected account balances on December 31:

Cash	$17,000
Accounts Payable	$23,000
Building and Equipment	$85,000
Retained Earnings	$45,000
Marketable Securities	$8,000
Accrued Short-Term Liabilities	$17,000
Accounts Receivable	$20,000
Prepaid Expenses	$14,000
Bonds Payable	$12,500
Inventory	$11,000

141. At December 31, Knighton Company's working capital was:
A) $47,000
B) $17,500
C) $30,000
D) $48,000

Answer: C Level: Easy LO: 3

142. At December 31, Knighton Company's acid-test (quick) ratio was closest to:
A) 1.75
B) 1.125
C) 1.96
D) 3.04

Answer: B Level: Easy LO: 3

143. At December 31, Knighton Company's current ratio was closest to:
A) 1.75
B) 3.04
C) 1.40
D) 2.43

Answer: A Level: Easy LO: 3

Use the following to answer questions 144-145:

Selected financial data for Monsen Company appear below:

	Year 2	*Year 1*
Sales	$400,000	$500,000
Cost of Goods Sold	$200,000	$220,000
Net Income	$75,000	$80,000
Accounts Receivable, December 31	$30,000	$20,000
Inventory, December 31	$25,000	$35,000

144. Assume all sales were on account. Monsen Company's accounts receivable turnover for Year 2 was closest to:
A) 18.0
B) 3.0
C) 16.0
D) 13.3

Answer: C Level: Easy LO: 3

145. Monsen Company's average sale period (turnover in days) for Year 2 was closest to:
A) 122 days
B) 41 days
C) 55 days
D) 45 days

Answer: C Level: Easy LO: 3

Use the following to answer questions 146-147:

Selected financial data for Ronco Corporation appear below:

	Year 2	*Year 1*
Sales	$200,000	$180,000
Cost of Goods Sold	$100,000	$80,000
Net Income	$40,000	$36,000
Accounts Receivable, December 31	$16,000	$8,000
Inventory, December 31	$20,000	$40,000

146. Ronco Corporation's inventory turnover ratio for Year 2 was closest to:
A) 3.33
B) 2.50
C) 5.00
D) 6.25

Answer: A Level: Easy LO: 3

147. Assume that 40% of Ronco Corporation's total sales are cash sales. The company's average collection period (age of receivables) for Year 2 was closest to:
A) 73.00 days
B) 36.50 days
C) 48.67 days
D) 54.72 days

Answer: B Level: Easy LO: 3

Use the following to answer questions 148-149:

Financial statements for Narstad Company appear below:

Narstad Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 100	$ 100
Accounts receivable, net	220	190
Inventory	190	180
Prepaid expenses	10	20
Total current assets	520	490
Noncurrent assets:		
Plant & equipment, net	1,940	1,940
Total assets	$2,460	$2,430
Current liabilities:		
Accounts payable	$ 150	$ 150
Accrued liabilities	90	70
Notes payable, short term	100	150
Total current liabilities	340	370
Noncurrent liabilities:		
Bonds payable	310	300
Total liabilities	650	670
Stockholders' equity:		
Preferred stock, $10 par, 6%	100	100
Common stock, $2 par	180	180
Additional paid-in capital--common stock	230	230
Retained earnings	1,300	1,250
Total stockholders' equity	1,810	1,760
Total liabilities & stockholders' equity	$2,460	$2,430

Narstad Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$1,770
Cost of goods sold	1,230
Gross margin	540
Operating expenses	210
Net operating income	330
Interest expense	30
Net income before taxes	300
Income taxes (30%)	90
Net income	$ 210

148. Narstad Company's times interest earned for Year 2 was closest to:
A) 11.0
B) 10.0
C) 18.0
D) 7.0

Answer: A Level: Medium LO: 4

149. Narstad Company's debt-to-equity ratio at the end of Year 2 was closest to:
A) 0.50
B) 0.36
C) 0.19
D) 0.17

Answer: B Level: Medium LO: 4

Chapter 17 Financial Statement Analysis

Essay Questions

150. Financial statements for Prasken Company appear below:

Prasken Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 130	$ 120
Accounts receivable, net	180	180
Inventory	170	180
Prepaid expenses	20	20
Total current assets	500	500
Noncurrent assets:		
Plant & equipment, net	2,000	1,930
Total assets	$2,500	$2,430
Current liabilities:		
Accounts payable	$ 130	$ 160
Accrued liabilities	30	60
Notes payable, short term	130	130
Total current liabilities	290	350
Noncurrent liabilities:		
Bonds payable	310	300
Total liabilities	600	650
Stockholders' equity:		
Preferred stock, $10 par, 10%	100	100
Common stock, $10 par	180	180
Additional paid-in capital--common stock	160	160
Retained earnings	1,460	1,340
Total stockholders' equity	1,900	1,780
Total liabilities & stockholders' equity	$2,500	$2,430

Prasken Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$2,300
Cost of goods sold	1,610
Gross margin	690
Operating expenses	270
Net operating income	420
Interest expense	30
Net income before taxes	390
Income taxes (30%)	117
Net income	$ 273

Dividends during Year 2 totaled $153 thousand, of which $10 thousand were preferred dividends. The market price of a share of common stock on December 31, Year 2 was $210.

Required:
Compute the following for Year 2:

a. Earnings per share of common stock.
b. Price-earnings ratio.
c. Dividend payout ratio.
d. Dividend yield ratio.
e. Return on total assets.
f. Return on common stockholders' equity.
g. Book value per share.
h. Working capital.
i. Current ratio.
j. Acid-test (quick) ratio.
k. Accounts receivable turnover.
l. Average collection period (age of receivables).
m. Inventory turnover.
n. Average sale period (turnover in days).
o. Times interest earned.
p. Debt-to-equity ratio.

Level: Medium LO: 2,3,4

Answer:

a. Earnings per share = (Net Income - Preferred Dividends) ÷
Average number of common shares outstanding*
= ($273 - $10) ÷ 18 = $14.61

*Number of common
shares outstanding = Common stock ÷ Par value = $180 ÷ $10 = 18

b. Price-earnings ratio = Market price per share ÷ Earnings per share (see above)
= $210 ÷ $14.61 = 14.4

c. Dividend payout ratio = Dividends per share* ÷ Earnings per share (see above)
= $7.94 ÷ $14.61 = 54.4%

*Dividends per share = Common dividends ÷ Common shares**
= $143 ÷ 18 = $7.94
**See above

d. Dividend yield ratio = Dividends per share* ÷
Market price per share
= $7.94 ÷ $210.00 = 3.78% *See above

e. Return on total assets = Adjusted net income* ÷ Average total assets**
= $294 ÷ $2,465 = 11.93%

*Adjusted net income = Net income + [Interest expense × (1-Tax rate)]
= $273 + [$30 × (1 - 0.30)] = $294

**Average total assets = ($2,500 + $2,430)÷2 = $2,465

f. Return on common stockholders' equity = (Net income - Preferred dividends) ÷
Average common stockholders' equity*
= ($273 - $10)÷$1,740 = 15.11%

*Average common stockholders' equity = ($1,800 + $1,680)÷2 = $1,740

g. Book value per share = Common stockholders' equity ÷
Number of common shares outstanding* = $1,800 ÷ 18 = $100.00

*Number of common shares outstanding = Common stock ÷ Par value
= $180 ÷ $10 = 18

h. Working capital = Current assets - Current liabilities = $500 - $290 = $210

i. Current ratio = Current assets ÷ Current liabilities = $500 ÷ $290 = 1.72

j. Acid-test ratio = Quick assets* ÷ Current liabilities = $310 ÷ $290 = 1.07

*Quick assets = Cash + Marketable securities + Current receivables
= $130 + $180 = $310

k. Accounts receivable turnover = Sales on account ÷ Average accounts receivable*
= $2,300 ÷ $180 = 12.78

*Average accounts receivable = ($180 + $180)÷2 = $180

l. Average collection period = 365 days ÷ Accounts receivable turnover*
= 365 ÷ 12.78 = 28.6 days
*See above

m. Inventory turnover = Cost of goods sold ÷ Average inventory*
= $1,610 ÷ $175 = 9.20

*Average inventory = ($170 + $180)÷2 = $175

n. Average sale period = 365 days ÷ Inventory turnover*
= 365 ÷9.20 = 39.7 days
*See above

o. Times interest earned = Net operating income ÷ Interest expense
= $420 ÷ $30 = 14.00

p. Debt-to-equity ratio = Liabilities ÷ Stockholders' equity= $600 ÷ $1,900 = 0.32

151. Financial statements for Prater Company appear below:

Prater Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 140	$ 130
Accounts receivable, net	120	110
Inventory	100	110
Prepaid expenses	50	40
Total current assets	410	390
Noncurrent assets:		
Plant & equipment, net	1,840	1,830
Total assets	$2,250	$2,220
Current liabilities:		
Accounts payable	$ 100	$ 100
Accrued liabilities	80	80
Notes payable, short term	210	230
Total current liabilities	390	410
Noncurrent liabilities:		
Bonds payable	460	500
Total liabilities	850	910
Stockholders' equity:		
Preferred stock, $5 par, 5%	100	100
Common stock, $10 par	200	200
Additional paid-in capital--common stock	260	260
Retained earnings	840	750
Total stockholders' equity	1,400	1,310
Total liabilities & stockholders' equity	$2,250	$2,220

Prater Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$2,000
Cost of goods sold	1,400
Gross margin	600
Operating expenses	240
Net operating income	360
Interest expense	50
Net income before taxes	310
Income taxes (30%)	93
Net income	$ 217

Dividends during Year 2 totaled $127 thousand, of which $5 thousand were preferred dividends. The market price of a share of common stock on December 31, Year 2 was $140.

Required:
Compute the following for Year 2:

a. Earnings per share of common stock.
b. Price-earnings ratio.
c. Dividend payout ratio.
d. Dividend yield ratio.
e. Return on total assets.
f. Return on common stockholders' equity.
g. Book value per share.
h. Working capital.
i. Current ratio.
j. Acid-test (quick) ratio.
k. Accounts receivable turnover.
l. Average collection period (age of receivables).
m. Inventory turnover.
n. Average sale period (turnover in days).
o. Times interest earned.
p. Debt-to-equity ratio.

Level: Medium LO: 2,3,4

Answer:

a. Earnings per share = (Net Income - Preferred Dividends) ÷
Average number of common shares outstanding*
= ($217 - $5) ÷ 20 = $10.60

*Number of common shares outstanding = Common stock ÷ Par value
= $200 ÷ $10 = 20

b. Price-earnings ratio = Market price per share ÷ Earnings per share (see above)
= $140 ÷ $10.60 = 13.2

c. Dividend payout ratio = Dividends per share* ÷ Earnings per share (see above)
= $6.10 ÷ $10.60 = 57.5%

*Dividends per share = Common dividends ÷ Common shares**
= $122 ÷ 20 = $6.10
**See above

d. Dividend yield ratio = Dividends per share* ÷ Market price per share
= $6.10 ÷ $140.00 = 4.36% *See above

e. Return on total assets = Adjusted net income* ÷ Average total assets**
= $252 ÷ $2,235 = 11.28%

*Adjusted net income = Net income + [Interest expense × (1-Tax rate)]
= $217 + [$50 × (1 - 0.30)] = $252

**Average total assets = ($2,250 + $2,220)÷2 = $2,235

f. Return on common stockholders' equity = (Net income - Preferred dividends) ÷
Average common stockholders' equity*
= ($217 - $5)÷$1,255 = 16.89%

*Average common stockholders' equity = ($1,300 + $1,210)÷2 = $1,255

g. Book value per share = Common stockholders' equity ÷
Number of common shares outstanding* = $1,300 ÷ 20 = $65.00

*Number of common shares outstanding = Common stock ÷ Par value
= $200 ÷ $10 = 20

h. Working capital = Current assets - Current liabilities
= $410 - $390 = $20

i. Current ratio = Current assets ÷ Current liabilities = $410 ÷ $390 = 1.05

j. Acid-test ratio = Quick assets* ÷ Current liabilities = $260 ÷ $390 = 0.67

*Quick assets = Cash + Marketable securities + Current receivables
= $140 + $120 = $260

k. Accounts receivable turnover = Sales on account ÷ Average accounts receivable*
= $2,000 ÷ $115 = 17.39

*Average accounts receivable = ($120 + $110)÷2 = $115

l. Average collection period = 365 days ÷ Accounts receivable turnover*
= 365 ÷ 17.39 = 21.0 days
*See above

m. Inventory turnover = Cost of goods sold ÷ Average inventory*
= $1,400 ÷ $105 = 13.33

*Average inventory = ($100 + $110)÷2 = $105

n. Average sale period = 365 days ÷ Inventory turnover*
= 365 ÷13.33 = 27.4 days
*See above

o. Times interest earned = Net operating income ÷ Interest expense
= $360 ÷ $50 = 7.20

p. Debt-to-equity ratio = Liabilities ÷ Stockholders' equity
= $850 ÷ $1,400 = 0.61

152. Mince Company's condensed financial statements appear below:

Mince Company
Balance Sheet
December 31

Cash and marketable securities	$100,000
Accounts receivable	120,000
Inventories	170,000
Prepaid expenses	10,000
Plant and equipment (net)	200,000
Total assets	$600,000
Accounts payable	$150,000
Taxes payable	45,000
Interest payable	5,000
Long-term bonds payable	100,000
Common stock (no par, 20,000 shares issued and outstanding)	140,000
Retained earnings	160,000
Total liabilities and stockholders' equity	$600,000

Mince Company
Income Statement
For the Year Ended December 31

Sales (all on account)	$2,700,000
Cost of goods sold	1,680,000
Gross margin	1,020,000
Operating expenses	790,000
Net operating income	230,000
Interest expense	20,000
Net income before taxes	210,000
Income taxes (30%)	63,000
Net income	$ 147,000

There was no change in the number of common shares outstanding during the year.

Required:
Determine the following:
a. Working capital.
b. Acid-test (quick) ratio.
c. Current ratio.
d. Earnings per share of common stock.
e. Book value per share.
f. Times interest earned.
g. Debt-to-equity ratio.

Level: Medium LO: 2,3,4

Answer:
a. Working capital = Current assets - Current liabilities
= $400,000 - $200,000 = $200,000

b. Quick ratio = (Cash + Marketable securities + Current receivables) ÷ Current liabilities
= ($100,000 + $120,000) ÷ $200,000 = 1.1

c. Current ratio = Current assets ÷ Current liabilities
= $400,000 ÷ $200,000 = 2

d. Earnings per share = (Net income - Preferred dividends) ÷ Average number of common shares outstanding
= ($147,000 - $0) ÷ 20,000 = $7.35 per share

e. Book value per share = Common stockholders' equity ÷ Common shares outstanding
= $300,000 ÷ 20,000 = $15 per share

f. Times interest earned = Net operating income ÷ Interest expense
= $230,000 ÷ $20,000 = 11.5

g. Debt-to-equity ratio = Total liabilities ÷ Total stockholders' equity
= $300,000 ÷ $300,000 = 1.0

153. Renbud Computer Services Co. (RCS) specializes in customized software development for the broadcast and telecommunications industries. The company was started by three people to develop software primarily for a national network to be used in broadcasting national election results. After sustained and manageable growth for many years. the company has grown very fast over the last three years, doubling in size.

This growth has placed the company in a challenging financial position. Within thirty days, RCS will need to renew its $300,000 loan with the Third State Bank of San Marcos. This loan is classified as a current liability on RCS's balance sheet. Harvey Renbud, president of RCS, is concerned about renewing the loan. The bank has requested RCS's most recent financial statements which appear below, including balance sheets for this year and last year. The bank has also requested four ratios relating to operating performance and liquidity.

Renbud Computer Services Co.
Income Statement
For the Year Ended December 31
(in thousands)

Sales		$2,500
Expenses:		
Cost of services provided	$l,500	
Selling and administrative	300	
Depreciation and amortization	200	
Interest	60	
Income taxes	150	
Total expenses		2,210
Net income		$ 290

Renbud Computer Services Co.
Balance Sheets
December 31
(in thousands)

	This Year	*Last Year*
Assets		
Cash	$ 50	$ 50
Accounts receivable, net	350	250
Other current assets	70	160
Equipment, net	1,100	800
Furniture and fixtures. net	120	100
Other noncurrent assets	240	200
Total assets	$1,930	$1,560
Liabilities and stockholders' equity		
Accounts payable	$ 150	$ 130
Taxes payable	140	120
Note payable (Third State Bank)	300	200
Bonds payable (due in seven years)	400	400
Total liabilities	990	850
Capital stock (1,000 shares)	100	100
Retained earnings	840	610
Total stockholders' equity	940	710
Total liabilities and stockholders' equity	$1,930	$1,560

Required:

a. Explain why the Third State Bank of San Marcos would be interested in reviewing Renbud Computer Services Co.'s comparative financial statements and its financial ratios before renewing the loan.
b. Calculate the following financial ratios for Renbud Computer Services Co.:
   1. The current ratio for both this year and last year.
   2. Accounts receivable turnover for this year.
   3. Return on common stockholders equity for this year.
   4. The debt-to-equity ratio for both this year and last year.
c. Discuss briefly the limitations and difficulties that can be encountered in using ratio analysis.

Level: Medium LO: 2,3,4 Source: CMA, adapted

Answer:

a. The Third State Bank would be interested in comparative financial statements so that it could analyze trends in data and operating results. Trends are important because they may point to basic changes in the nature of the business. Ratio analysis would give some indication of the company's short-term solvency and help Third State Bank assess the level of risk involved in the loan. The ratios would also be useful in analyzing how RCS is performing compared to industry averages, and thus serve as a benchmark for comparison to other companies. Ratios reduce absolute dollar amounts to more meaningful data in order for the bank to compare ratios to prior periods, other companies, and the industry. Ratios can be used to show how well the company is being managed and to highlight areas for further investigation. If the ratios do not appear favorable compared to the company's own past and to other companies in its industry, the bank may consider adjusting the dollar level and/or the interest rate of the note or may even decide not to renew the note.

b. Calculations of selected financial ratios are presented below.

1. Current ratio.
   This Year
   Current assets = $50 + $350 + $70 = $470
   Current liabilities = $150 + $140 + $300 = $590
   Current ratio = $470/$590 = 0.80
   Last Year
   Current assets = $50 + $250 + $160 = $460
   Current liabilities = $130 + $120 + $200 = $450
   Current ratio = $460/$450 = 1.02

2. Accounts receivable turnover.
   Sales = $2,500
   Average receivables = ($350 + $250)/2 = $300
   Accounts receivable turnover = $2,500/$300 = 8.33

3. Return on common stockholders equity.
   Net income – Preferred dividends = $290 – $0 = $290
   Average common stockholders equity = ($940 + $710)/2 = $825
   Return on common stockholders equity = $290/$825 = 35.15%

4. Debt-to-equity ratio.
   This Year
   Total liabilities = $990
   Total stockholders equity = $940
   Debt-to-equity ratio = $990/$940 = 1.05
   Last Year
   Total liabilities = $850
   Total stockholders equity = $710
   Debt-to-equity ratio = $850/$710 = 1.20

c. The difficulties and limitations of ratio analysis include the following:
   - Although ratios are useful as a starting point in financial analysis, they are not an end in themselves. Ratios can be used as indicators of what to pursue in a more detailed analysis.
   - Different companies often use different accounting methods (e.g., FIFO versus LIFO inventory valuation) and this can have an impact on the financial ratios that does not reflect real differences in the operations and financial health of the companies.
   - Making comparisons across industries can be difficult. Companies in different industries tend to have different financial ratios.
   - Since the ratios are based on accounting statements, they measure what has happened in the past and not necessarily what will happen in the future.

154. Financial statements for Provost Corporation are presented below. The market price of Provost's common stock was $25 per share on December 31, Year 2. During Year 2, dividends of $2 million were paid to preferred stockholders and $10 million to common stockholders.

Provost Corporation
Comparative Statement of Financial Position
December 31, Year 1 and Year 2
$(000 omitted)

Assets	*Year 2*	*Year 1*
Current assets:		
Cash	$ 4,000	$ 3,600
Short-term marketable securities	2,000	1,200
Accounts receivable (net)	20,000	16,800
Inventory	28,000	28,800
Total current assets	54,000	50,400
Long-term assets:		
Property, plant, and equipment (net)	75,000	81,600
Long-term investments	12,000	12,000
Total assets	$141,000	$144,000
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 7,000	$ 6,000
Wages payable	1,000	1,200
Total current liabilities	8,000	7,200
Long-term liabilities:		
Bonds payable, 10%	24,000	24,000
Total liabilities	32,000	31,200
Stockholders' equity:		
Preferred stock, 10%, 1,000,000 shares	20,000	20,000
Common stock, 5,000,000 shares, no par	30,000	30,000
Retained earnings	59,000	62,800
Total stockholders' equity	109,000	112,800
Total liabilities and stockholders' equity	$141,000	$144,000

Provost Corporation
Comparative Statement of Income
For the Years Ended December 31, Year 1 and Year 2
$(000 omitted)

	Year 2	*Year 1*
Sales (all on credit)	$280,000	$280,000
Cost of goods sold	200,000	168,000
Gross margin	80,000	112,000
Operating expenses	40,000	38,000
Net operating income	40,000	74,000
Interest expense	5,000	4,000
Net income before income tax	35,000	70,000
Income tax expense	14,000	28,000
Net income	$ 21,000	$ 42,000

Required:

Determine the following for Year 2:
a. Dividend payout ratio.
b. Dividend yield ratio.
c. Price-earnings ratio.
d. Accounts receivable turnover.
e. Inventory turnover.
f. Return on total assets.
g. Return on common stockholders' equity.
h. Was financial leverage positive or negative for Year 2? Explain.

Level: Medium LO: 2,3

Answer:

a. Dividend payout ratio = Dividends per share ÷ Earnings per share

Dividends per share = $10,000,000 ÷ 5,000,000 = $2

Earnings per share = (Net income - Preferred dividends) ÷
Number of common shares outstanding
= ($21,000,000 - $2,000,000) ÷ 5,000,000 = $3.80

Dividend payout ratio = $2 ÷ $3.80 = 52.6%

b. Dividend yield ratio = Dividends per share ÷
Market price per share = $2 ÷ $25 = 8%

c. Price-earnings ratio = Market price per share ÷ Earnings per share
= $25 ÷ $3.80 = 6.58

d. Accounts receivable turnover = Sales on account ÷
Average accounts receivable balance
= $280,000 ÷ [($16,800 + $20,000)/2] = 15.22

e. Inventory turnover = Cost of goods sold ÷ Average inventory balance
= $200,000 ÷ [($28,800 + $28,000)/2] = 7.04

f. Return on total assets = {Net income + [Interest expense × (1-Tax Rate)]} ÷
Average Total Assets
= {$21,000,000 + [$5,000,000 (1-.40)]} ÷ [($144,000,000 + $141,000,000)/2]
= 16.84%

g. Return on common stockholders' equity = (Net income - Preferred dividends) ÷
Average common stockholders' equity
= ($21,000,000 - $2,000,000) ÷ [($92,800,000 + $89,000,000)/2] = 20.90%

h. Financial leverage was positive since the rate of return to the common stockholders (20.90%) was greater than the rate of return on total assets (16.84%).

155. Financial statements for Qadir Company appear below:

The market price of a share of common stock on December 31, Year 2 was $70.

Qadir Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 190	$ 160
Accounts receivable, net	190	170
Inventory	120	120
Prepaid expenses	20	30
Total current assets	520	480
Noncurrent assets:		
Plant & equipment, net	1,070	1,070
Total assets	$1,590	$1,550
Current liabilities:		
Accounts payable	$ 100	$ 110
Accrued liabilities	50	80
Notes payable, short term	170	170
Total current liabilities	320	360
Noncurrent liabilities:		
Bonds payable	390	400
Total liabilities	710	760
Stockholders' equity:		
Preferred stock, $10 par, 15%	100	100
Common stock, $10 par	240	240
Additional paid-in capital--common stock	130	130
Retained earnings	410	320
Total stockholders' equity	880	790
Total liabilities & stockholders' equity	$1,590	$1,550

Qadir Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$1,200
Cost of goods sold	840
Gross margin	360
Operating expenses	140
Net operating income	220
Interest expense	40
Net income before taxes	180
Income taxes (30%)	54
Net income	$ 126

Dividends during Year 2 totaled $36 thousand, of which $15 thousand were preferred dividends. The market price of a share of common stock on December 31, Year 2 was $70.

Required:
Compute the following for Year 2:
a. Earnings per share of common stock.
b. Price-earnings ratio.
c. Dividend yield ratio.
d. Return on total assets.
e. Return on common stockholders' equity.
f. Book value per share.

Level: Medium LO: 2

Answer:

a. Earnings per share = (Net Income - Preferred Dividends) ÷
Average number of common shares outstanding*
= ($126 - $15) ÷ 24 = $4.63

*Number of common shares outstanding = Common stock ÷ Par value
= $240 ÷ $10 = 24

b. Price-earnings ratio = Market price per share ÷
Earnings per share (see above) = $70 ÷ $4.63 = 15.1

c. Dividend yield ratio = Dividends per share* ÷ Market price per share
= $0.88 ÷ $70.00 = 1.25%

*Dividends per share = Common dividends ÷ Common shares**
= $21 ÷ 24 = $0.88
**See above

d. Return on total assets = Adjusted net income* ÷ Average total assets**
= $154 ÷ $1,570 = 9.81%

*Adjusted net income = Net income + [Interest expense × (1-Tax rate)]
= $126 + [$40 × (1 - 0.30)] = $154

**Average total assets = ($1,590 + $1,550) ÷ 2 = $1,570

e. Return on common stockholders' equity = (Net income - Preferred dividends) ÷
Average common stockholders' equity*
= ($126 - $15) ÷ $735 = 15.10%

*Average common stockholders' equity = ($780 + $690) ÷ 2 = $735

f. Book value per share = Common stockholders' equity ÷
Number of common shares outstanding* = $780 ÷ 24 = $32.50

*Number of common shares outstanding = Common stock ÷ Par value
= $240 ÷ $10 = 24

156. Financial statements for Qabar Company appear below:

Qabar Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 140	$ 140
Accounts receivable, net	180	160
Inventory	160	160
Prepaid expenses	70	60
Total current assets	550	520
Noncurrent assets:		
Plant & equipment, net	1,530	1,440
Total assets	$2,080	$1,960
Current liabilities:		
Accounts payable	$ 190	$ 180
Accrued liabilities	60	80
Notes payable, short term	150	190
Total current liabilities	400	450
Noncurrent liabilities:		
Bonds payable	260	300
Total liabilities	660	750
Stockholders' equity:		
Preferred stock, $10 par, 5%	100	100
Common stock, $10 par	180	180
Additional paid-in capital--common stock	270	270
Retained earnings	870	660
Total stockholders' equity	1,420	1,210
Total liabilities & stockholders' equity	$2,080	$1,960

Qabar Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$2,200
Cost of goods sold	1,540
Gross margin	660
Operating expenses	260
Net operating income	400
Interest expense	30
Net income before taxes	370
Income taxes (30%)	111
Net income	$ 259

Dividends during Year 2 totaled $49 thousand, of which $5 thousand were preferred dividends. The market price of a share of common stock on December 31, Year 2 was $220.

Required:
Compute the following for Year 2:
a. Earnings per share of common stock.
b. Price-earnings ratio.
c. Dividend yield ratio.
d. Return on total assets.
e. Return on common stockholders' equity.
f. Book value per share.

Level: Medium LO: 2

Answer:

a. Earnings per share = (Net Income - Preferred Dividends) ÷
Average number of common shares outstanding*
= ($259 - $5) ÷ 18 = $14.11

*Number of common shares outstanding = Common stock ÷ Par value
= $180 ÷ $10 = 18

b. Price-earnings ratio = Market price per share ÷ Earnings per share (see above)
= $220 ÷ $14.11 = 15.6

c. Dividend yield ratio = Dividends per share* ÷ Market price per share
= $2.44 ÷ $220.00 = 1.11%

*Dividends per share = Common dividends ÷ Common shares**
= $44 ÷ 18 = $2.44
**See above

d. Return on total assets = Adjusted net income* ÷ Average total assets**
= $280 ÷ $2,020 = 13.86%

*Adjusted net income = Net income + [Interest expense × (1-Tax rate)]
= $259 + [$30 × (1 - 0.30)] = $280

**Average total assets = ($2,080 + $1,960)÷2 = $2,020

e. Return on common stockholders' equity = (Net income - Preferred dividends) ÷
Average common stockholders' equity*
= ($259 - $5)÷$1,215 = 20.91%

*Average common stockholders' equity = ($1,320 + $1,110)÷2 = $1,215

f. Book value per share = Common stockholders' equity ÷
Number of common shares outstanding*
= $1,320 ÷ 18 = $73.33

*Number of common shares outstanding = Common stock ÷ Par value
= $180 ÷ $10 = 18

157. Financial statements for Rardin Company appear below:

Rardin Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 160	$ 160
Accounts receivable, net	180	160
Inventory	160	180
Prepaid expenses	80	70
Total current assets	580	570
Noncurrent assets:		
Plant & equipment, net	1,180	1,110
Total assets	$1,760	$1,680
Current liabilities:		
Accounts payable	$ 130	$ 140
Accrued liabilities	40	60
Notes payable, short term	290	280
Total current liabilities	460	480
Noncurrent liabilities:		
Bonds payable	260	300
Total liabilities	720	780
Stockholders' equity:		
Preferred stock, $5 par, 10%	100	100
Common stock, $5 par	160	160
Additional paid-in capital--common stock	150	150
Retained earnings	630	490
Total stockholders' equity	1,040	900
Total liabilities & stockholders' equity	$1,760	$1,680

Rardin Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$1,900
Cost of goods sold	1,330
Gross margin	570
Operating expenses	220
Net operating income	350
Interest expense	30
Net income before taxes	320
Income taxes (30%)	96
Net income	$ 224

Required:
Compute the following for Year 2:
a. Current ratio.
b. Acid-test (quick) ratio.
c. Average collection period (age of receivables).
d. Inventory turnover.
e. Times interest earned.
f. Debt-to-equity ratio.

Level: Medium LO: 3,4

Answer:

a. Current ratio = Current assets ÷ Current liabilities = $580 ÷ $460 = 1.26

b. Acid-test ratio = Quick assets* ÷ Current liabilities = $340 ÷ $460 = 0.74

*Quick assets = Cash + Marketable securities + Current receivables
= $160 + $180 = $340

c. Accounts receivable turnover
= Sales on account ÷ Average accounts receivable*
= $1,900 ÷ $170 = 11.18

*Average accounts receivable = ($180 + $160)÷2 = $170

Average collection period = 365 days ÷ Accounts receivable turnover
= 365 ÷ 11.18 = 32.7 days

d. Inventory turnover = Cost of goods sold ÷ Average inventory*
= $1,330 ÷ $170 = 7.82

*Average inventory = ($160 + $180) ÷ 2 = $170

e. Times interest earned = Net operating income ÷ Interest expense
= $350 ÷ $30 = 11.67

f. Debt-to-equity ratio = Liabilities ÷ Stockholders' equity
= $720 ÷ $1,040 = 0.69

158. Financial statements for Rarey Company appear below:

Rarey Company
Statement of Financial Position
December 31, Year 2 and Year 1
(dollars in thousands)

	Year 2	*Year 1*
Current assets:		
Cash and marketable securities	$ 150	$ 120
Accounts receivable, net	180	160
Inventory	140	160
Prepaid expenses	30	40
Total current assets	500	480
Noncurrent assets:		
Plant & equipment, net	1,550	1,550
Total assets	$2,050	$2,030
Current liabilities:		
Accounts payable	$ 130	$ 130
Accrued liabilities	40	40
Notes payable, short term	230	230
Total current liabilities	400	400
Noncurrent liabilities:		
Bonds payable	260	300
Total liabilities	660	700
Stockholders' equity:		
Preferred stock, $10 par, 15%	100	100
Common stock, $10 par	180	180
Additional paid-in capital--common stock	210	210
Retained earnings	900	840
Total stockholders' equity	1,390	1,330
Total liabilities & stockholders' equity	$2,050	$2,030

Rarey Company
Income Statement
For the Year Ended December 31, Year 2
(dollars in thousands)

Sales (all on account)	$2,400
Cost of goods sold	1,680
Gross margin	720
Operating expenses	280
Net operating income	440
Interest expense	30
Net income before taxes	410
Income taxes (30%)	123
Net income	$ 287

Required:
Compute the following for Year 2:
a. Current ratio.
b. Acid-test (quick) ratio.
c. Average collection period (age of receivables).
d. Inventory turnover.
e. Times interest earned.
f. Debt-to-equity ratio.

Level: Medium LO: 3,4

Answer:

a. Current ratio = Current assets ÷ Current liabilities = $500 ÷ $400 = 1.25

b. Acid-test ratio = Quick assets* ÷ Current liabilities = $330 ÷ $400 = 0.83

*Quick assets = Cash + Marketable securities + Current receivables
= $150 + $180 = $330

c. Accounts receivable turnover
= Sales on account ÷ Average accounts receivable*
= $2,400 ÷ $170 = 14.12

*Average accounts receivable = ($180 + $160) ÷ 2 = $170

Average collection period = 365 days ÷ Accounts receivable turnover
= 365 ÷ 14.12 = 25.9 days

d. Inventory turnover = Cost of goods sold ÷ Average inventory*
= $1,680 ÷ $150 = 11.20

*Average inventory = ($140 + $160) ÷ 2 = $150

e. Times interest earned = Net operating income ÷ Interest expense
= $440 ÷ $30 = 14.67

f. Debt-to-equity ratio = Liabilities ÷ Stockholders' equity
= $660 ÷ $1,390 = 0.47

159. All-Things Inc. manufactures a variety of consumer products. The company's founders have managed the company for thirty years and are now interested in selling the company and retiring. Trist Associates is looking into the acquisition of All-Things and has requested the company's latest financial statements and selected financial ratios in order to evaluate All-Things' financial stability and operating efficiency. The summary information provided by All-Things is presented below.

All-Things Inc
Income Statement
For the Year Ended May 31, Year 3
(in thousands)

Sales	$30,500
Expenses:	
Cost of goods sold	17,600
Selling and administrative expense	3,050
Depreciation and amortization expense	1,890
Interest expense	900
Total expenses	23,440
Income before taxes	7,060
Income taxes	2,900
Net income	$ 4,160

All-Things Inc.
Comparative Statement of Financial Position
As of May 31
(in thousands)

	Year 3	*Year 2*
Cash	$ 400	$ 500
Marketable securities	500	200
Accounts receivable, net	3,200	2,900
Inventory	5,800	5,400
Total current assets	9,900	9,000
Property, plant, and equipment, net	7,100	7,000
Total assets	$17,000	$16,000
Accounts payable	$ 3,700	$ 3,400
Income taxes payable	900	800
Accrued expenses	1,700	1,400
Total current liabilities	6,300	5,600
Long-term debt	2,000	1,800
Total liabilities	8,300	7,400
Common stock $(1 par value)	2,700	2,700
Paid-in-capital in excess of par	1,000	1,000
Retained earnings	5,000	4,900
Total stockholders' equity	8,700	8,600
Total liabilities and stockholders' equity	$17,000	$16,000

Selected Financial Ratios

	All-Things		*Current Industry*
	Year 2	*Year 1*	*Average*
Current ratio	1.61	1.62	1.63
Acid-test ratio	0.64	0.63	0.68
Inventory turnover	3.17	3.21	3.18
Times interest earned	8.55	8.50	8.45
Debt-to-equity ratio	0.86	1.02	1.03

Required:

a. Calculate the above ratios for fiscal year Year 3 for All-Things Inc.
b. What do these ratios tell you about the company's operations and ability to take on additional debt?
c. Identify two limitations of ratio analysis.

Level: Medium LO: 3,4

Answer:

a. Calculations of the financial ratios follow:

Current ratio = Current assets ÷ Current liabilities = $9,900 ÷ $6,300 = 1.57

Acid-test ratio = (Cash + Marketable Securities + Net receivables) ÷ Current liabilities = ($400 + $500 + $3,200) ÷ $6,300 = 0.65

Inventory turnover = Cost of goods sold ÷ Average inventory = $17,600 ÷ [1/2 ($5,800 + $5,400)] = 3.14

Times interest earned = Income before interest and taxes ÷ Interest expense = ($7,060 + $900) ÷ $900 = 8.84

Debt-to-equity ratio = Total liabilities ÷ Stockholders' equity = $8,300 ÷ $8,700 = 0.95

b. The analytical use of each of the seven ratios:

Current ratio.
- Measures ability to meet short-term obligations using short-term assets.
- All-Things' current ratio has declined slightly over the last three years from 1.62 to 1.57 and the level of the current ratio is a bit below the industry average. This may be cause for some concern, although the magnitudes are not large.

Acid-test ratio.
- Measures ability to meet short-term obligations using the most liquid assets.
- All-Things has improved its acid-test ratio over the last three years, but it is still below the industry average. Furthermore, an acid-test ratio below 1.0 indicates that All-Things may have difficulty meeting its short-term obligations.

Inventory turnover.
- Measures how quickly inventory is sold.
- All-Things' ratio has been steadily declining and is below the industry average. This may indicate a decline in operating efficiency, obsolete inventory, or a poor marketing strategy.

Times interest earned.

- Measures the ability to meet interest commitments from current earnings. The higher the ratio, the more safety there is for long-term creditors.
- All-Things' ratio has been improving over the last three years and is above the industry average. This indicates that the company has additional capacity to borrow and repay funds.

Debt-to-equity ratio.

- Measures the level of protection creditors have in the case of possible insolvency. It also is used to help gauge the company's capacity to take on additional debt.
- All Things' debt-to-equity ratio has deteriorated slightly but has been below the industry average over the last three years. All-Things should be able to raise additional funds through debt and still remain below the industry average.

c. The difficulties and limitations of ratio analysis include the following:
   - Although ratios are useful as a starting point in financial analysis, they are not an end in themselves. Ratios can be used as indicators of what to pursue in a more detailed analysis.
   - Different companies often use different accounting methods (e.g., FIFO versus LIFO inventory valuation) and this can have an impact on the financial ratios that does not reflect real differences in the operations and financial health of the companies.
   - Making comparisons across industries can be difficult. Companies in different industries tend to have different financial ratios.
   - Since the ratios are based on accounting statements, they measure what has happened in the past and not necessarily what will happen in the future.